ComBridge Home Control Center

Version 2.0

User manual

Revision: 02-10-2014 – Rev 2.0

IPAS

C o p y r i g h t n o t i c e

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1. Preface

ComBridge HCC is the first graphical, web-based IPAS visualization in a compact device with the ETS application program. Unlike the well-known ComBridge Studio Evolution, ComBridge HCC is a system with a data base in XML format. This means that the visualization as well as the Editor are integral parts of a data base. The entire ComBridge HCC software, including the data base, is pre-installed in a high-performance embedded hardware. This means that all you need to do to start the commissioning is to connect the ComBridge HCC to the appropriate network. You only need basic network knowledge, a standard browser and the ETS programming software to create a project.

Text properties

The text properties and symbols used in this handbook have the following meaning:

Normal text: ARIAL 10p.

File names and directories: Bookman Old Style italics.

Data entry: Bookman Old Style bold.

Selection field : A framed text represents a selection field.

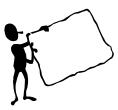
☛: See other sections of the document.

This symbol marks references to third-party documents.

Advice and tips

Attention: Avoid mistakes

Error notification and related issues.



Particularly relevant information for this topic.

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2. Introduction

2.1. System requirements

ComBridge HCC requires a browser such as Internet Explorer, FireFox or Safari for both configuration and operation. In addition, Adobe Flash player from version 10 upwards needs to be installed on the projecting PC. The Adobe Flash player is imperative for the editing of the project. For the initial commissioning, you can connect the HCC directly to a PC or laptop with a network cable. However, the configuration may also be performed remotely from a client PC within the network.

For the visualisation you only need a web browser to display the HTML pages. Flash Plug-in is not required.

2.2. Using special characters and symbols

Depending on country-specific system settings, different unicodes are used to represent certain characters. Web applications often use unicodes which may not properly show an Umlaut (ä, ö, ü). We therefore recommend you avoid using an Umlaut or special character.

3. ComBridge HCC features

IPAS is one of the leading providers of web-based visualisations. With its previous HTML-based visualisation software ComBridge Studio Suite, IPAS already offered a solution for large-scale projects such as airports, shopping centres, office buildings and premises with multiple sites. All our experience in realising these projects with their thousands of users, large quantities of data and hundreds of KNXnet/IP gateways has gone into our latest development: ComBridge HCC.

In addition to standard functions and status display, ComBridge HCC also offers very complex functions, such as scenes, annual schedules, graphical visualisation and logic functions for the design and execution of KNX projects. Based on Adobe Flash, very simple and elegant elements and functions can be used for the display, so that a KNX system can be visualised quickly and easily. Another advantage is the fact that ComBridge HCC does not depend on any specific operating system. It is simply configured via standard browsers in combination with Adobe Flashplayer. Flashplayer can be downloaded from the Internet free of charge.

From version 1.2.0 upwards up to 1000 group addresses are available on the device in addition to 250 ETS objects. These can be linked to the control elements via drag&drop.

From version 1.1.7 upwards a simple smart visualisation can be configured in addition to the free graphical visualisation. It offers an easy-to-operate editor and is optimised for all smart phones and mobile browsers. For more information, please see the separate handbook.

From version 1.1.0 upwards the device also offers a KNXnet/IP interface to access, for example, the KNX system with ETS or to serve as interface for a superior management system.

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4. Commissioning

4.1. Delivery package and commissioning

ComBridge HCC is delivered as follows:

- ComBridge HCC with pre-installed software
- Operating and installation instructions

The following can be found at the bottom of the REG casing (from left to right):

- 24 VDC – power supply,
- KNX bus coupler
- RJ45 plug for Ethernet.

The default setting of ComBridge HCC is:

- IP address assignment: manual IP
- IP address: 192.168.1.133
- Physical address: 15.15.255
- User password:
- Editor password: HCC

For the first commissioning, please use a KNX project which was created with the ETS programming tool. You can then connect the ComBridge HCC to the network. You can choose any web browser for the connection.

4.2. Error LED

The Error LED indicated the following states:

- KNX connection interrupted
- ETS Application not loaded
- Email could not be transmitted
- Internal Error

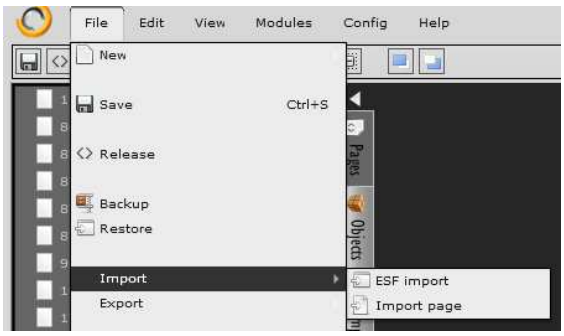
5. Quickstart

From version 1.2 upwards, group addresses can be linked with control elements.
However, ETS objects that were assigned in the ETS can also still be used. Both options are briefly presented below.

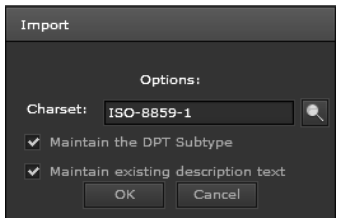
5.1. Using group addresses

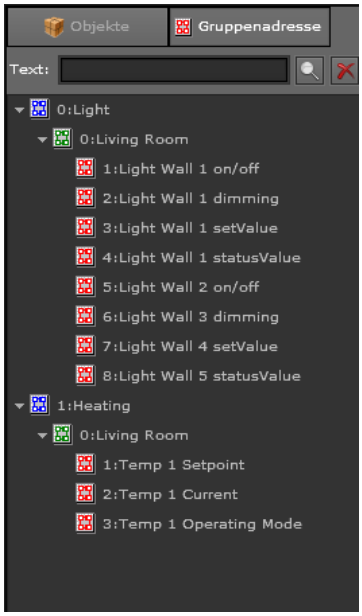
Please connect the device to a separate 24VDC power source, KNX and an IP network.
Start the ETS and select and add the ComBridge HCC to your project. Open the parameter page and define the general settings (IP address).
It is not essential to define the objects. Please see method 2 (Using ETS objects) for more details.
To use the group addresses, an OPC export can be carried out in the ETS.

All group addresses that have already been assigned in the ETS project are saved in an esf file which can later be imported into the HCC Editor.
After the IP address of the HCC has been assigned and loaded in the ETS, the Editor can be loaded in a web browser: http://<ip>/editor.php.



Unless it is changed in the ETS, the password is HCC.





The ESF file can be imported as shown in the image above. If no particular font is required, you can use the pre-set ISO-8859-1. Following the import the group addresses are listed in a tree structure similar to the one in the ETS.

Group addresses can be entered into the text fields of the corresponding control elements either manually via the keyboard or simply by using drag&drop.

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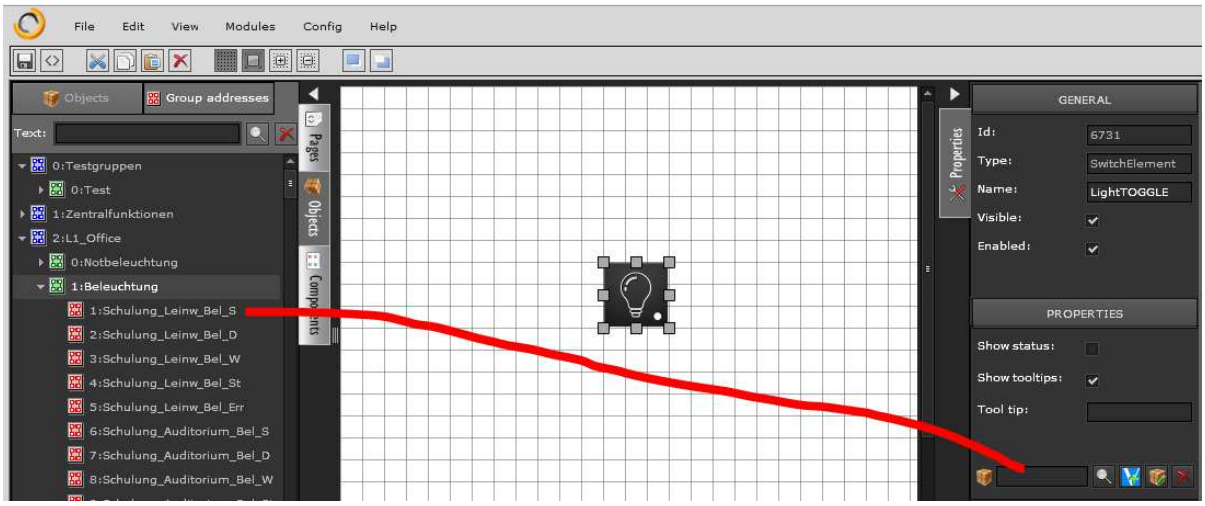


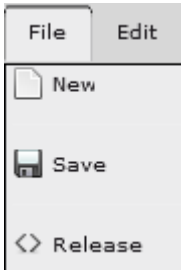
For more information, please see chapter 15.1.

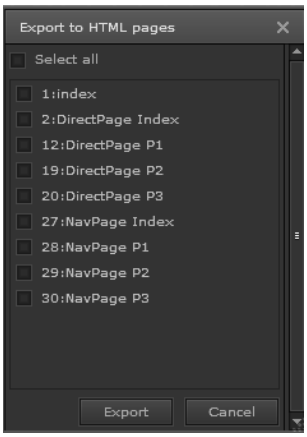
To create a visualisation, simply set up the required websites.

A visualisation always starts with the **Index** page!

The index page should always be the basis of your visualisation.

To generate the Index page and all other pages so that they are available in the browser, select menu item file→visualisation and select all the HTML pages that you want to generate.

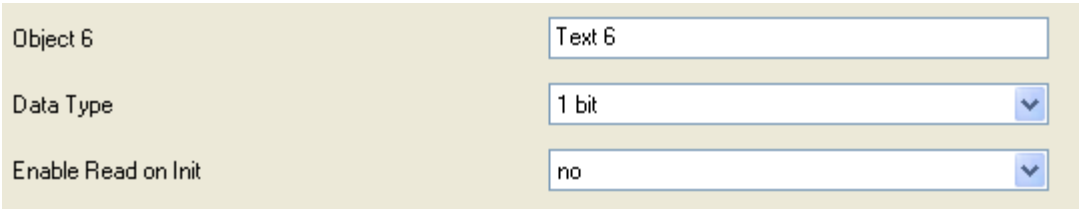




You can also load the menu item via the button.
The visualisation is now available on any browser via http://<ip>.

5.2. Using ETS Objects

Please connect the device to a separate 24VDC power supply source, KNX and an IP network. Start the ETS, select and add ComBridge HCC to your project. Afterwards, please open the parameter page and define the General Settings (IP address), as well as the object types which you would like to use later on in the visualisation.



Option A:

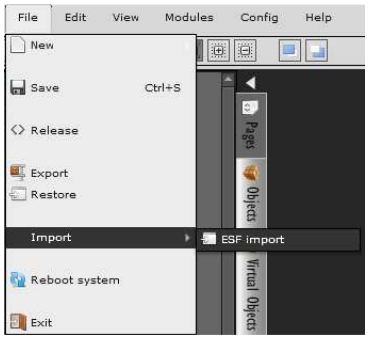
Do not enter any object names, as these can be inserted later on automatically via an esf-import. This method is simpler and faster if you have given the group addresses sensible descriptions in the ETS. When assigning the group addresses, you do not need to comply with any template. You can simply link the required group addresses.

Option B:

On the parameter page, please enter the object name which you would like to display later on in the Editor. When you assign the group addresses, please comply with the template. This method is slightly more time-consuming.

Load the device with the ETS. You can now open the Editor with a browser:
http://<ip>/editor.php
The password, unless you changed it with the ETS, is HCC.

To import the object names from the ETS, according to option A, please select the menu item File → Import:



To create a visualisation, please set up the corresponding web pages.

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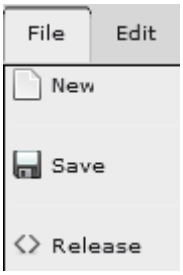
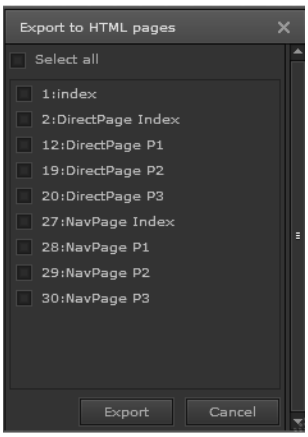
The visualisation always starts with the **Index** page!

This page is always the basis of your visualisation.



To generate the index page as well as all other pages and to make sure that these are available in the browser, please select the menu item File→Release and select all the HTML pages you would like to generate.



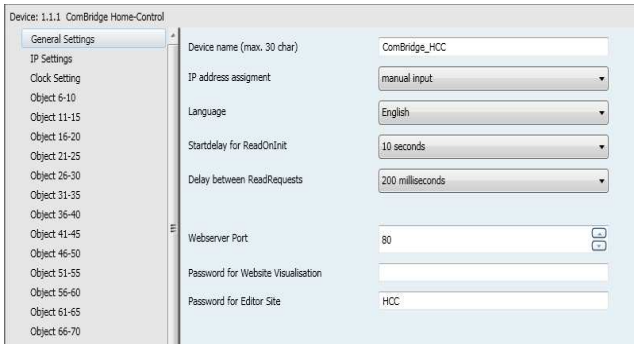
You can also load the menu item directly via

Afterwards the visualisation will be available on any browser via http://<ip>.

6. ETS configuration

6.1. Parameter

Parameter	Settings
Device name (max. 30 char)	
Use this parameter to name the device.	
Method of IP address assignment	Manual entry Via DHCP server
The IP address can either be entered manually or defined automatically via DHCP.	
Query is started following a bus reset in	10 seconds 20 seconds 30 seconds 1 minute 2 minutes 3 minutes 4 minutes 5 minutes
Use this parameter to set the time after which you want to query status objects following a bus reset.	
Time delay between queries	200 milli seconds 500 milli seconds 1 second 2 seconds
Use this parameter to set the time delay between queries.	
Webserver port	**80**
This parameter defines the port number of the integrated web server. The default setting is port number 80.	
Password for visualisation	
Use this parameter to set the password for the web visualisation. By default no password is defined. You can enter up to 8 characters (0-9,A-Z). No distinction is made between capital and lower case letters.	
Editor password	**HCC**
Use this parameter to set the editor password for the web visualisation. By default no password is defined. You can enter up to 8 characters (0-9,A-Z). No distinction is made between capital and lower case letters.	



Network settings

Parameter	Settings
Network setting	
IP address / 1. Byte	**192**
IP address / 2. Byte	**168**
IP address/ 3. Byte	**1**
IP address / 4. Byte	**133**
This parameter is used for the standard IP address of the ComBridge HCC. If DHCP mode was selected, the address is permanently overwritten by the address assigned by the DHCP server. The IP address 0.0.0.0 is invalid and only makes sense in case of an activated DHCP server	
Subnet Mask / 1. Byte	**255**
Subnet Mask / 2. Byte	**255**
Subnet Mask / 3. Byte	**255**
Subnet Mask / 4. Byte	**0**
This parameter is used for the standard IP subnet mask of the ComBridge HCC. If DHCP mode was selected, the mask is permanently overwritten by the address assigned by the DHCP server. If the device is configured without DHCP server (setting *fixed IP address*), the device must have the correct subnet mask for it to function properly.	
IP address Default Router / 1. Byte	**192**
IP address Default Router / 2. Byte	**168**
IP addressDefault Router / 3. Byte	**1**
IP address Default Router / 4. Byte	**1**

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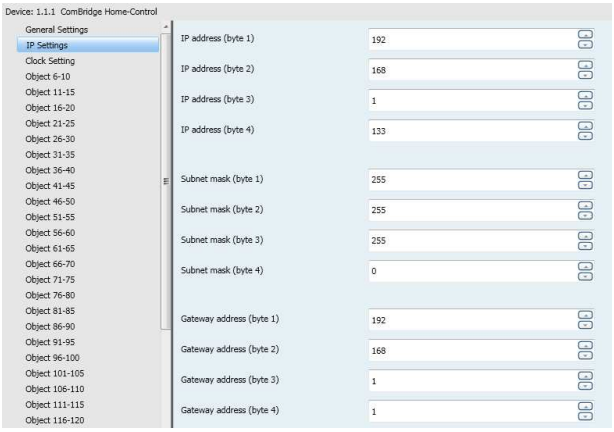
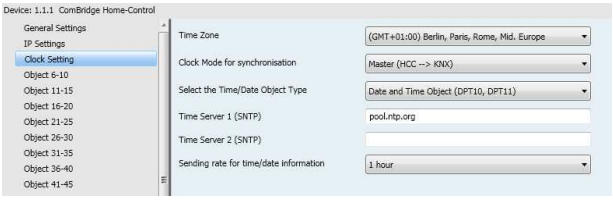
The standard router is used to send telegrams which are addressed to a PC outside of the local network. If DHCP mode is selected, the address is permanently overwritten by the DHCP-server. If the DHCP server itself does not transmit an address for a router, it is assumed that no router is to be used. If you want to configure the device without standard router, please use the pre-set (invalid) address (**0.0.0.0**)	
DNS server address / 1. Byte	**192**
DNS server address / 2. Byte	**168**
DNS server address / 3. Byte	**1**
DNS server address / 4. Byte	**1**
This parameter is used for the standard IP subnet mask of the DNS server. If DHCP mode was selected, the mask is permanently overwritten by the address assigned by the DHCP server. If the device is configured without DHCP server (setting *fixed IP address*), the device must have a DNS server address to enable name resolution, for example to access a time server. Usually the standard gateway is also the DNS server.	



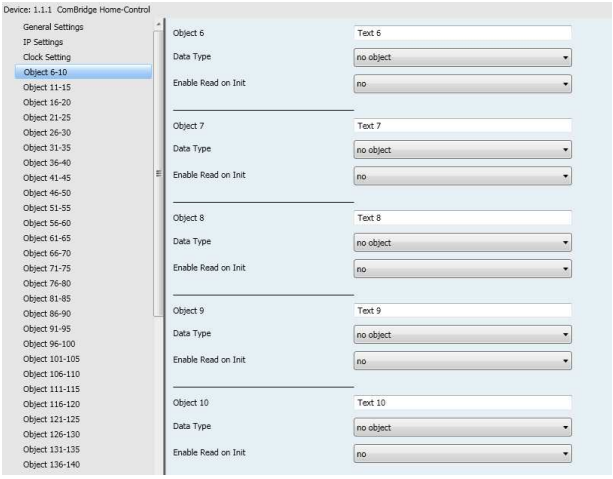
Clock setting

Parameter	Settings
Clock setting	
Time zone	(GMT-5:00) Eastern (USA/Canada) (GMT-6:00) Central (USA/Canada) (GMT-7:00) Mountain (USA/Canada) (GMT-8:00) Pacific (USA/Canada) **(GMT+1:00)** **Brussels,Berlin,Rome,Stockholm,Vienna, etc.**
The parameter *Time zone* ensures the adjustment to the local area. Please see above for some of the currently available options.	
Summer time – winter time change	**Active,** Inactive
This parameter defines whether the time is automatically changed from summer to winter time and vice versa.	
Clock synchronisation	**Master (HCC -> KNX)** Slave (KNX -> HCC)
The following synchronisation options are available: Synchronisation via the device (Master Mode). In this mode the time can be synchronised via IP and a time server. Synchronisation via KNX (Slave Mode). In this mode the internal clock is synchronised via telegrams from the KNX.	
Selecting the date/time object	**Date and time object** Date/time object combines both types
The time and date information can be sent via 2 different data types: Date and time object (DPT10, DPT11) or a combined object (DPT19).	
Time server 1 (SNTP)	
Time server 1 (SNTP)	
To synchronise the real-time clock, the time server (SNTP) can be queried in regular intervals.	
Sending interval for date/time information	1 minute 2 minutes 5 minutes 10 minutes 30 minutes **1 hour** 2 hours 4 hours 8 hours 12 hours 24 hours
Use this parameter to set the sending interval for the transmission of date and time information to the KNX.	



Settings for objects 6-255

Parameter	Settings
Object 6	**Text 6**
Use this parameter to describe object 6.This configuration is possible for all objects. Tip: The name can also be imported later on in the Editor via an ESF import. See Quickstart Option A.	
Data type	**No object** 1 bit 1 Byte 0..100% 1 Byte unsigned 1 Byte signed 2 Byte unsigned 2 Byte signed 2 Byte float 4 Byte unsigned 4 Byte signed 4 Byte float 14 Byte text
This parameter sets the data type of the communication object. This configuration is possible for all objects.	
Activate query on start-up	**no** yes
This parameter defines for each object whether or not to send a query to the bus when the device is started.	



Once defined, the communication object is shown in the ETS where it can be linked to a group address.

6.2. Objects

The following communication objects can be selected:

General objects				
Obj	Function	Object name	Type	Flags
1	Status	Device status	4 Byte	CTR
Data type: 4 Byte For detailed description refer to section 13.				
2	Date (DPT 11.001)	Date	3 Byte	CTR master mode
Data type: 11.001				
2	Date (DPT 11.001)	Date	3 Byte	CUW slave mode
Data type: 11.001				
3	Time (DPT 10.001)	Time	3 Byte	CTR Master mode
Data type: 10.001				
2	Date (DPT 11.001)	Date	3 Byte	CUW Slave mode
Data type: 11.001				
4	Date/time (DPT 19.001)	Date/time	8 Byte	CTR master mode
Data type: 19.001				
4	Date/time (DPT 19.001)	Date/time	8 Byte	CUW Slave mode
Data type: 19.001				
5	Scene	Scene	8 Byte	CUW
Data type: 1 Byte				

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Objects 6-250

Possible object times for object 6 The function and type are defined in the ETS configuration.				
Obj	Function	Object name	Type	Flags
6	Binary	Object 6	1 Bit	UCWT
Data type: 1 bit				
6	0..100%	Object 6	1 Byte	UCWT
Data type: 1 Byte 0..100%				
6	unsigned	Object 6	1 Byte	UCWT
Data type: 1 Byte unsigned				
6	signed	Object 6	1 Byte	UCWT
Data type: 1 Byte signed				
6	unsigned	Object 6	2 Byte	UCWT
Data type: 2 Byte unsigned				
6	signed	Object 6	2 Byte	UCWT
Data type: 2 Byte signed				
6	float	Object 6	2 Byte	UCWT
Data type: 2 Byte float				
6	unsigned	Object 6	4 Byte	UCWT
Data type: 4 Byte unsigned				
6	signed	Object 6	4 Byte	UCWT
Data type: 4 Byte signed				
6	float	Object 6	4 Byte	UCWT
Data type: 4 Byte float				
6	text	Object 6	4 Byte	UCWT
Data type: 14 Byte text				

Possible object types for object 255 The function and type are configured in the ETS.				
Obj	Function	Object name	Type	Flags
255	Binary	Object 255	1 Bit	UCWT
Data type: 1 bit				
255	0..100%	Object 255	1 Byte	UCWT
Data type: 1 Byte 0..100%				
255	unsigned	Object 255	1 Byte	UCWT
Data type: 1 Byte unsigned				
255	signed	Object 255	1 Byte	UCWT
Data type: 1 Byte signed				
255	unsigned	Object 255	2 Byte	UCWT
Data type: 2 Byte unsigned				
255	signed	Object 255	2 Byte	UCWT
Data type: 2 Byte signed				
255	float	Object 255	2 Byte	UCWT
Data type: 2 Byte float				
255	unsigned	Object 255	4 Byte	UCWT
Data type: 4 Byte unsigned				
255	signed	Object 255	4 Byte	UCWT
Data type: 4 Byte signed				
255	float	Object 255	4 Byte	UCWT
Data type: 4 Byte float				
255	text	Object 255	4 Byte	UCWT
Data type: 14 Byte text				

7. Projection

7.1. Configuring the ComBridge HCC

Before you can begin with the actual configuration, you need to set the network parameters. To do so, set the parameters in the ETS application program first and then load them onto the device. To connect to the network, you also need to set up the PC/laptop accordingly.

7.2. Opening the Editor

You can open the Editor using a password, which is assigned in the ETS. Once you enter the IP address that was configured in the ETS into the web browser (e.g. http://192.168.1.133/editor.php) the start page opens showing a touch-screen keyboard to enter the password. If the password is entered correctly, the Editor opens.

If you want to make sure that the end user cannot gain access to the Editor, you simply need to configure two identical passwords in the ETS. When configured in this way, the end user will only ever see the visualisation page after entering the password.

You can only enter alphanumerical characters for the password (A-Z, 0-9). Others characters will not be accepted.

Important advice: To use the Editor, Adobe Flash Player Plug-in (version 10 or upwards) needs to be installed in your web-browser. The download is available free-of-charge from www.adobe.com.

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ComBridge HCC log-in page

Before you load the Editor, we recommend you complete the configuration of the application program and the ComBridge HCC as the Editor will then be able to recognise all required communication objects and their corresponding data.

If you enter the administrator password, the ComBridge HCC Editor opens.

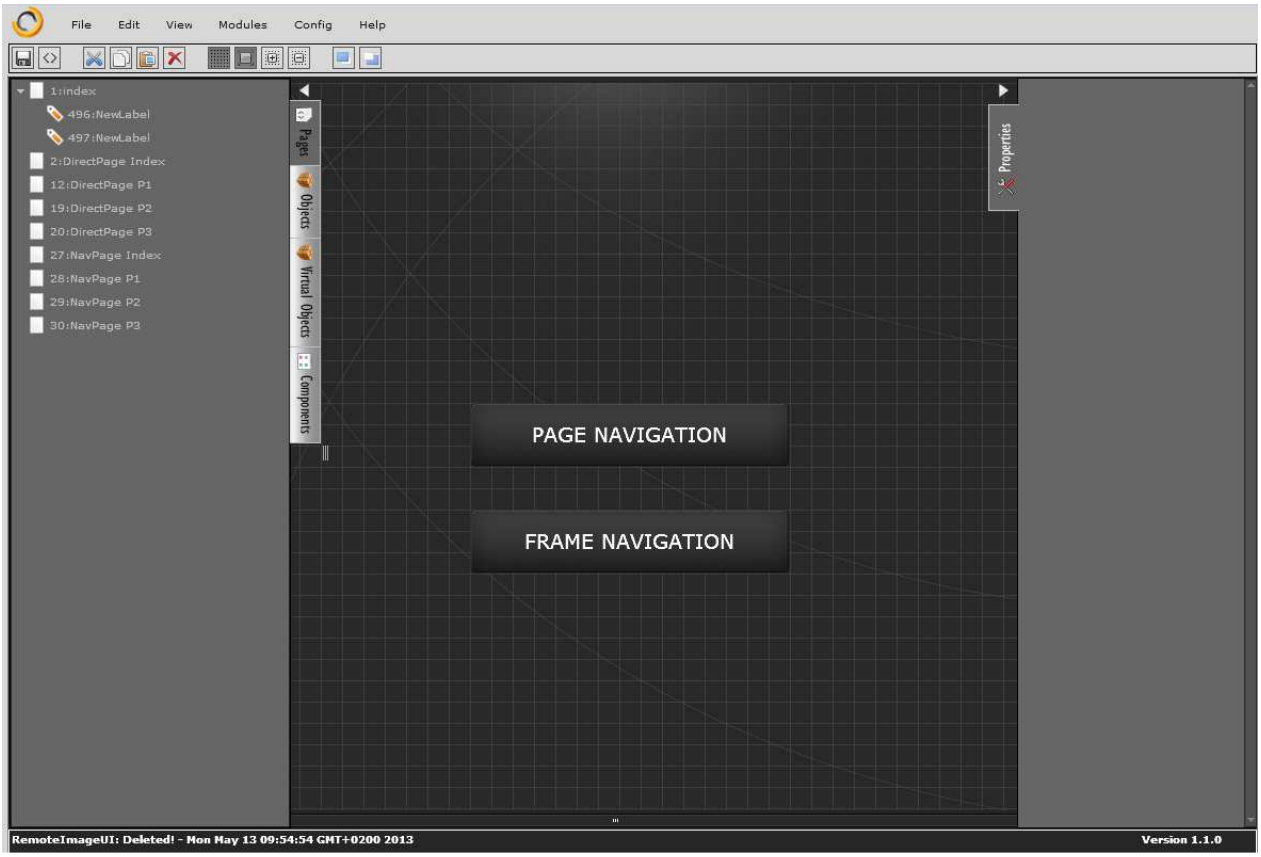
You now have the option to externally save the configuration data that is stored in the internal database (HCC). By default, project data is **not** saved on the PC/laptop used for the programming process.

7.3. Language setting

Upon delivery the pre-set language is English. To change the language, please open the selection window in the menu Config→Select Language. Please select the required language and close the window.
The selected language only becomes active after the Editor is re-started. Please close the Editor and log-in again via http://<ip>/editor.php.

7.3.1. Short overview of menu items

The figure below shows the ComBridge HCC Editor interface. Enter http://"*assigned IP address*"/editor.php. in the web browser to load the page. At the top of the screen is the title bar of the main menu. Just below the bar, you will see several icons representing the most important editing functions such as save, delete, copy, cut, etc. In the centre of the screen you will find the visualisation work space. The functions menu is located to the left and the properties menu to the right of the work space.



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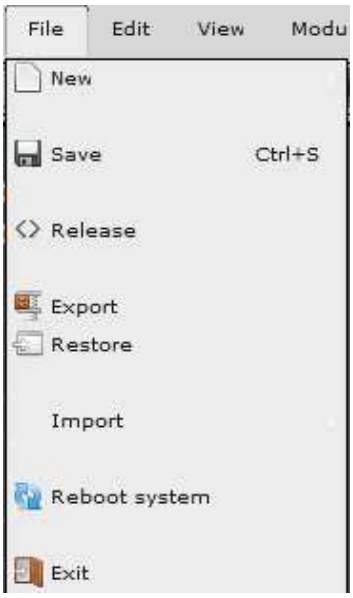
The tool bar

Save project	Cut	Activate grid	Bring to front
Release	Copy	Latch to the grid	Send to back
	Paste	Increase grid size	
	Delete	Reduce grid size	

Main menu functions in detail:

The File Menu



New: opens a new project page

Save: saves any changes made to the project

Release: generates a visualisation of the project in HTML format and saves it in the ComBridge HCC

Export: The entire project is exported and saved on the PC/laptop.

Restore: The locally saved project is recovered and restored on the ComBridge HCC

Import: ESF import or import of a visualisation page. To import group addresses from the ETS, please use the ESF file (OPC export) created with the ETS. A selection of character sets is available for this purpose to import different characters such as Greek or Chinese.

A previously exported visualisation page, for example from a different project, can also be imported.

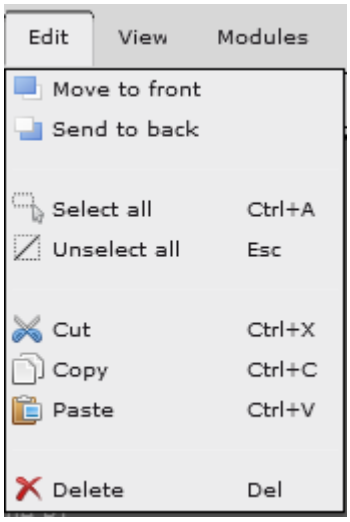
Export: The current visualisation page can be exported.

Group address control: Shows how many of the 1000 possible group addresses are already in use.

Integrity check: Checks whether group addresses that are used multiple times, are potentially used with different data types.

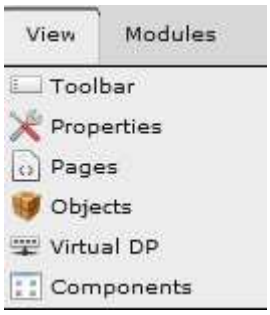
Reboot system: The HCC device will be re-started.

Exit: The Editor closes down. We recommend you use this option before you terminate the software.



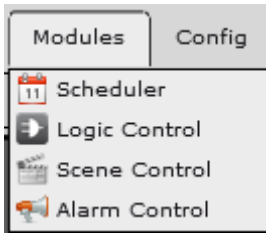
The Edit Menu

Move to front: The selected element will be moved to the front.
Send to back: The selected element will be sent to the back.
Select all: All elements of the current page will be selected at once.
Unselect all: All elements of the current page will be de-selected at once.
Cut: The selected element will be cut and stored on the clipboard.
Copy: The selected element will be copied and stored on the clipboard.
Paste: The selected element will be inserted at the current position of the cursor.
Delete: deletes the selected element



The View Menu

Toolbar: The top tool bar becomes visible/invisible.
Properties: gives direct access to the selected elements
Pages: shows the visualisation pages
Objects: shows the communication objects
Virtual DP: shows the existing variables
Components: shows the visualisation components



The Module Menu

Scheduler: access to the Editor module for schedules
Logic Control: access to the Editor module for logic functions
Scene Control: access to the Editor module for scenes
Alarm Control: access to the Editor module for alarm settings

The Configuration Menu

Select Language: This option allows the user to select the language of the Editor from a list of available languages**.** The language only becomes active after the device is re-started.

Select Style: This option allows the user to select different image styles which are stored on the device (see chapter 9).

SMTP Configuration: This is where all settings related to your e-mail provider are defined, see chapter 9.4.4.

Restore default: The current configuration is deleted and all default settings and default parameters are restored.

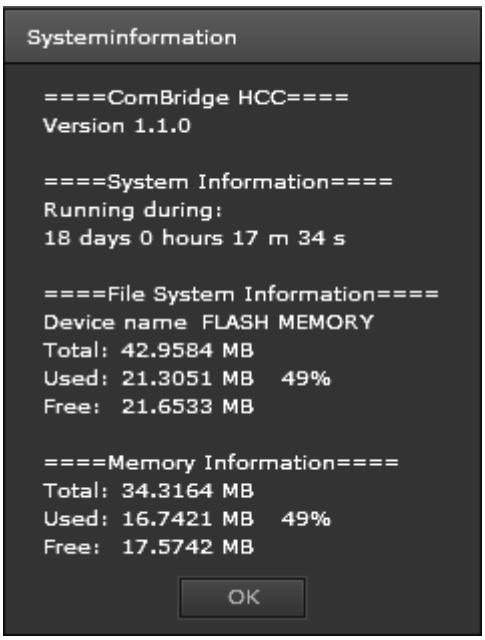
Disable autosave: Activate this option to disable autosaving the project (every minute).

Preferences: general system settings, see also chapter 15.1.3.

SmartVisu configuration: If required, a password can be set for the separate SmartVisu Editor.

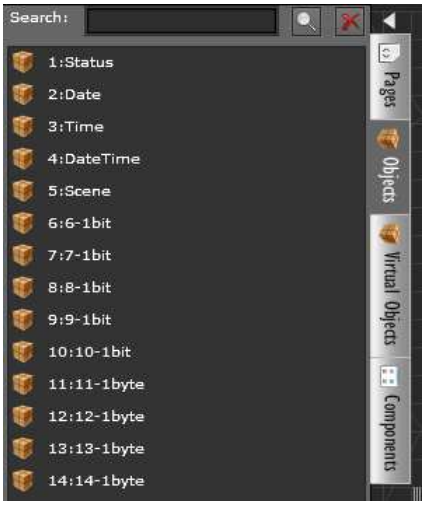
The Help Menu

This is where we offer links to the IPAS website or the online Wiki system.



The menu item System Info provides the user with information about currently available memory space, the software version and the length of time the device has been running since the last start.

7.4. Objects, virtual objects and group addresses



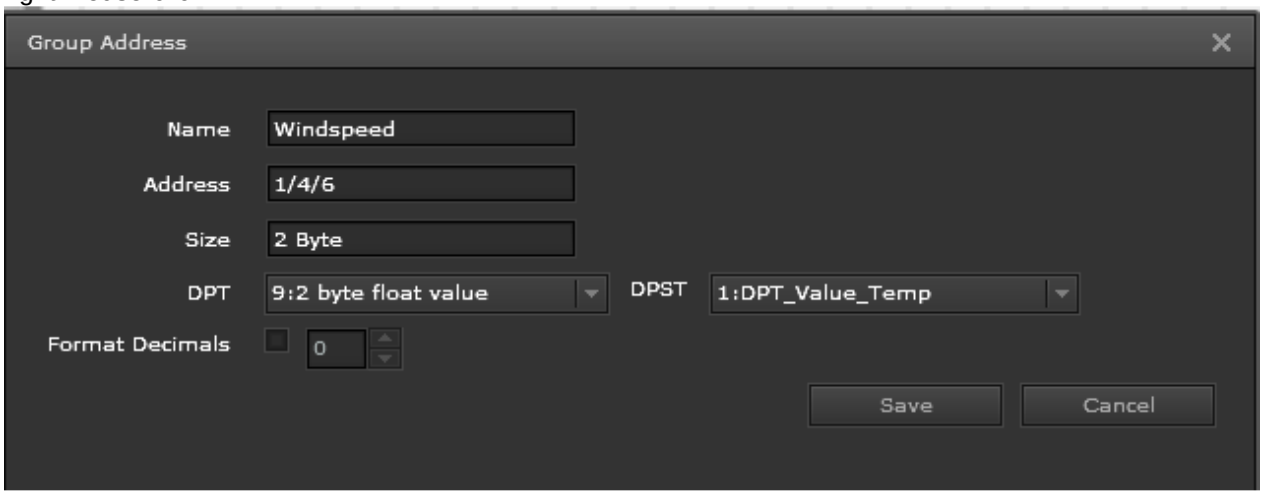
Three types of objects can be used in the Editor:

- *communication objects*
- *virtual objects (variables)*

All object types can be accessed via the vertical menu on the side (tabs Objects and Virtual Objects)
Altogether 250 communication objects, 745 variables and up to 1000 group addresses are available.

7.4.1. Group addresses

Group addresses are imported via esf import and listed in a tree view on the left hand side. Open the configuration window of the group address via a double-click or via the context menu that appears following a right mouse-click.



Name: You can use the name field to overwrite the name configured in the ETS.
Address: Group address
Size: data type size
DPT: data point type
SubDPT: modifiable in the Editor to ensure correct display in the visualisation

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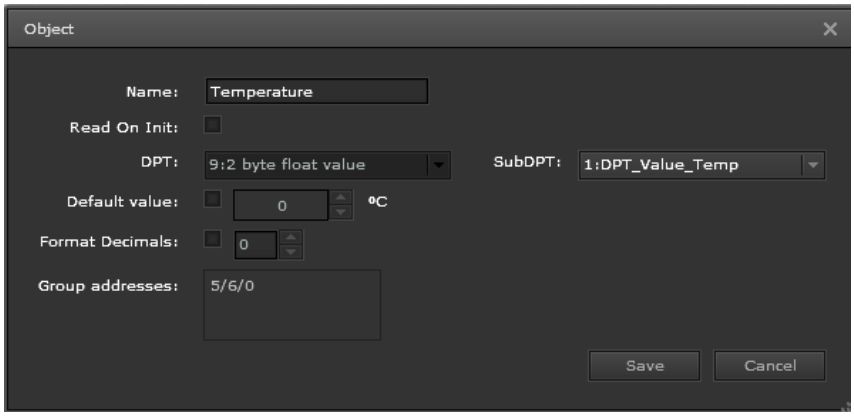
7.4.2. Communication objects

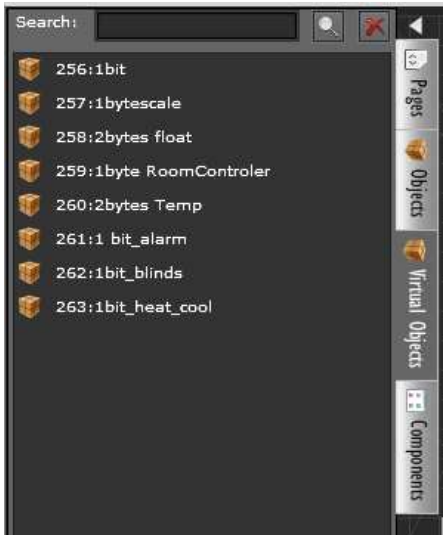
Communication objects are imported and represented by the parameters configured in the ETS application program. Open the configuration window of the object via a double-click or via the context menu that appears following a right mouse-click.

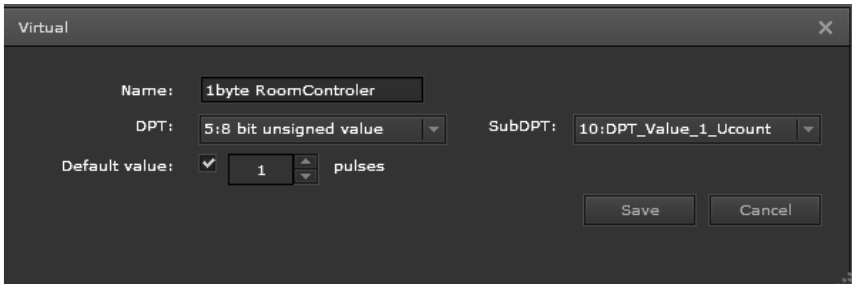


Name: You can use the name field to overwrite the name configured in the ETS.
Read on init: read request, cannot be edited in the Editor
DPT: data point type defined in the ETS, cannot be edited in the Editor
SubDPT: modifiable in the Editor to ensure correct display in the visualisation
Default value: modifiable in the Editor so that you can work with a pre-defined value if no valid value exists in the KNX
Format Decimals: modifiable in the Editor to define the number of decimal places that are to be displayed for analogue values
Group addresses: the group address defined in the ETS for this object, cannot be edited in the Editor

7.4.3. Virtual objects

Virtual objects enable the internal exchange of data and parameters between the visualisation, logic and scheduling modules. To create a new virtual object, right-click on the Virtual Objects tab in the vertical list. The following properties can be configured in the window.

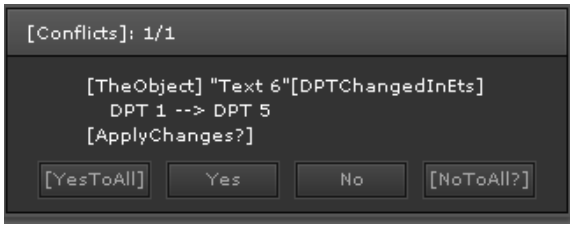




Name: name of the virtual object
DPT: DPT of your choice
SubDTP: The datapoint subtype is required to represent values in the visualisation.
Default value: default value of the variable before the current data has been assigned to the object

7.4.4. Conflicts caused by different data points

Each time the application program is downloaded via ETS, the Editor will check the data points assigned by the ETS. If there is a difference between already existing and newly assigned DTPs, the change needs to be acknowledged.



If the change is acknowledged, the DTPs in all linked objects are updated. If the change is rejected, all linked objects are de-activated.

Once the Editor is re-started the same procedure is carried out again.

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8. Creating a new project

All visualisations with ComBridge HCC are project-based. The device is delivered with a demo project.

If you open the Editor, the current project opens immediately.

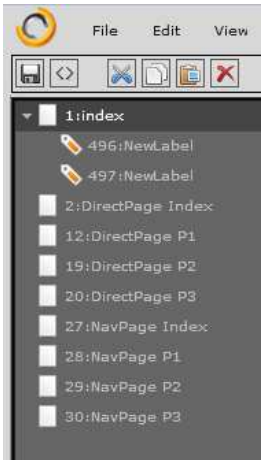
If you do not want to use the demo project as a template, you can delete it. To do so, please click on “Restore default settings” in the configuration menu. All current configurations are deleted.

The visualisation always starts with the **Index** page!

This page will always be the starting point for your visualisation.

8.1. Creating a visualisation page

The first step to create a comprehensive visualisation is to generate a visualisation page ("page"). This page contains a combination of images and control elements. To create a new page, right-click on the “Pages” tab. A list of all available pages opens on the left-hand side. Upon delivery the pages shown are those of the demo project.



The figure to the left shows the list of available demo pages. Click on the right mouse button to open the context menu. Go to option “New page“. This opens a new page for editing.

On the right-hand side of the work space, a menu appears with the properties of the new page.

General settings:

ID: ID number

Type: type of element

Name: name of the page, the default name is "*NewPage*". When giving a name to a page, we recommend using a name that is related to the project so as to facilitate identification.

Style:

This is where you can define the lay-out of the visualisation page.

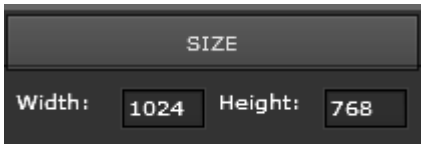
Background: background colour

Transparent: visible/invisible

Image: selection of a background image. Use to select images and save these on the device. You can also delete images currently stored in the flash memory. Use to load an image as background image. Use to delete background images.

Scale: Tick this box to automatically adjust the image resolution to the configured size.

X:Y Ratio: Tick this box to retain the width to height ratio when the image is re-sized.



Size:

The menu **Size** defines the size of the page. The width and height are shown in pixels.

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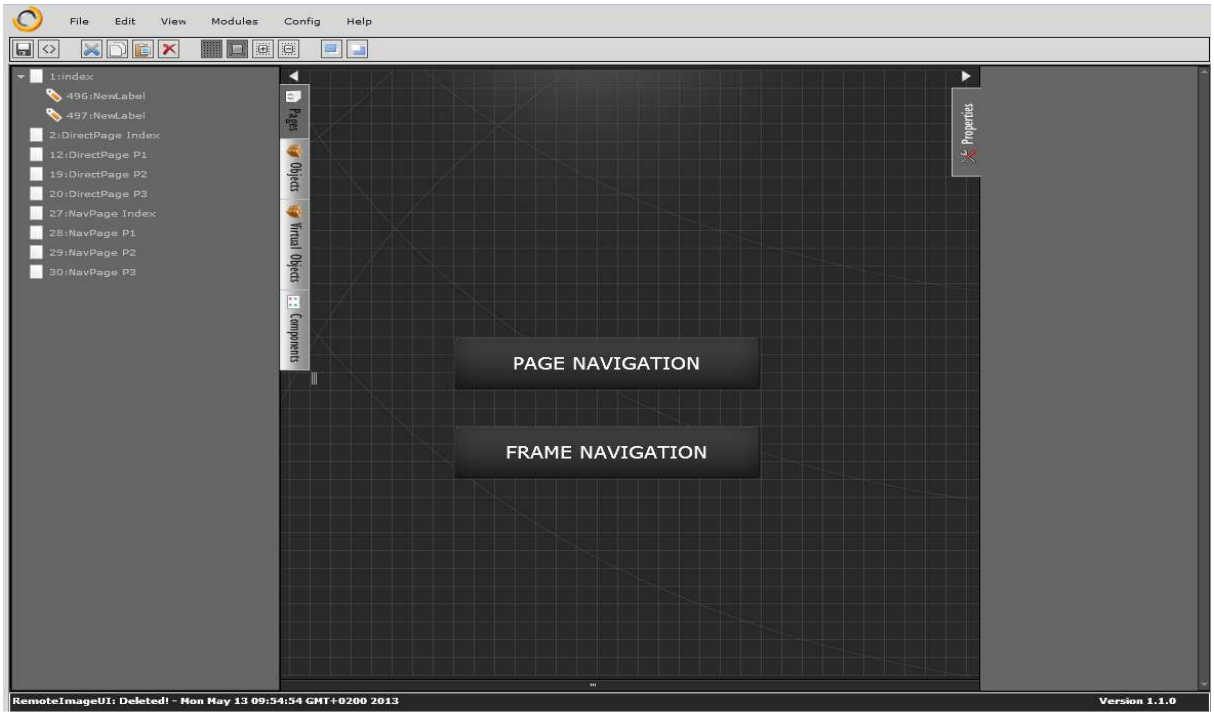
8.2. The demo project

Upon delivery of the device a demo project is pre-installed.



The project shows two ways in which navigation can be built. You will need to decide which of those you would like to use to load other pages in the project.

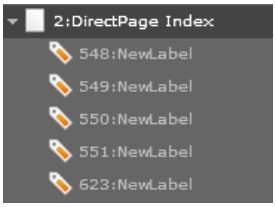
Option 1: Page navigation

This option means that the current page is replaced by another one. The entire page is effectively exchanged. All pages should have the same size and all pages need to contain the navigation buttons.

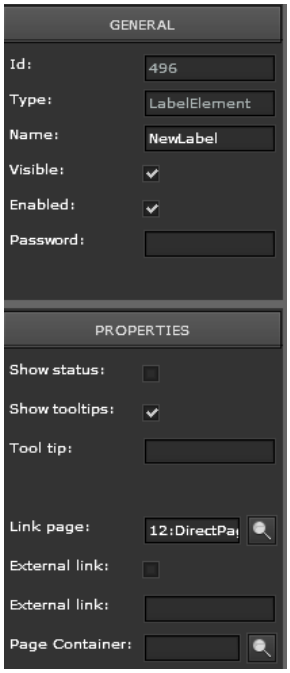
Option 2: Frame navigation

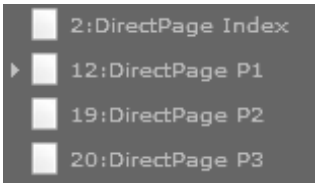
If you use this option, other pages are loaded in a frame (container). This means that the main page with the navigation buttons will always remain active. The other pages are loaded in the frame.

Option 1:



If you use page navigation, the main page (DirectPage Index) will show 5 button elements (NewLabel) that can be used to load other pages. On the configuration page for these elements, please enter the page that you would like to load via each button. The entry for the page container remains empty. This means that the page will not be loaded in a container but will replace the current page.

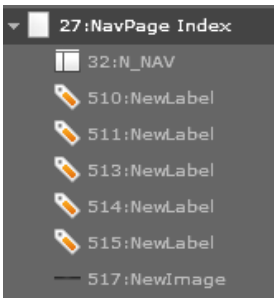




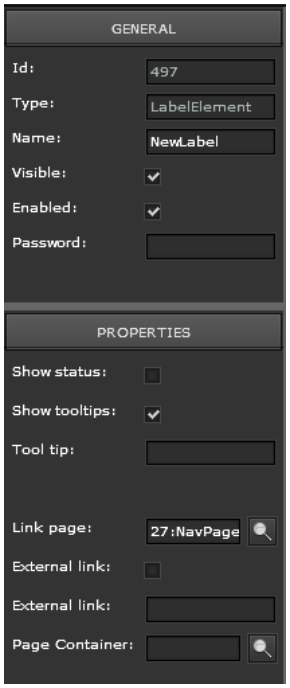
There are three example pages for page navigation:

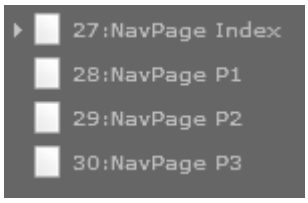
- *DirectPage P1*
- *DirectPage P2*
- *DirectPage P3*

Option 2:



If you choose frame navigation, a frame (container) is shown in addition to the buttons (NewLabel). This container is where later on the other pages will appear. On the configuration page for the control elements, please enter the pages you would like to load in the page container.





There are three example pages for the frame navigation:

- *NavPage P1*
- *NavPage P2*
- *NavPage P3*

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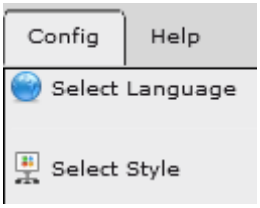
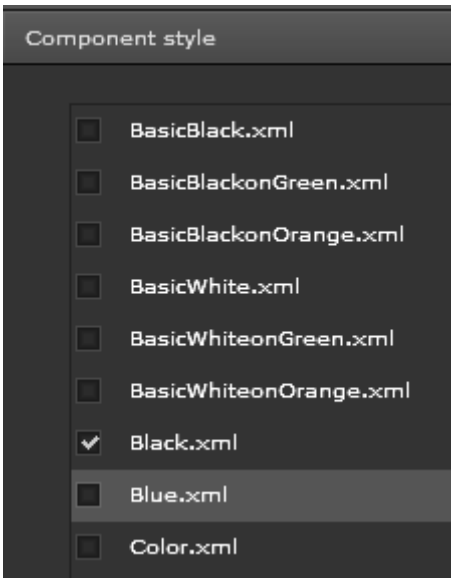
9. Operating elements

9.1. Selecting a style

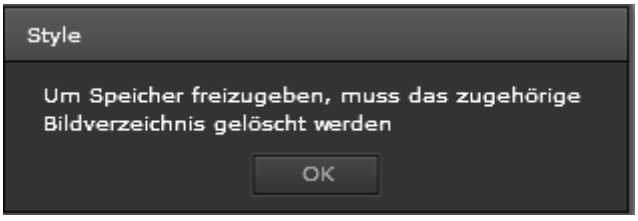


From version 1.1.0 upwards different styles can be selected. Go to menu item Configuration → select style to see a list of all installed styles:



Please see the appendix for a description of all styles.

Press the “Delete“ button to remove styles from the device. Please remember that the style definition is linked to the corresponding images. These need to be deleted separately to free up memory space on the device.



9.2. Control elements in the components list

ComBridge HCC offers a range of control elements for the configuration of control functions.

Select a control element and pull it via drag and drop from the components menu to the work space. You can edit the properties of the selected element in the properties menu on the right-hand side. The control elements are divided into the following groups:

- *Light switching*
- *Switching general*
- *Switching miscelleanous*
- *Status general*
- *Shutters*
- *Advanced control elements*
- *Navigation + labelling*

There are two types of properties that can be assigned to the control elements.

- ***Principal properties***
- ***Individual properties***

Principal properties are the same for all control elements. They will be described in the following chapter. The descriptions are examples that apply to all other control elements. Individual properties differ depending on the control element. They will be explained for each element.

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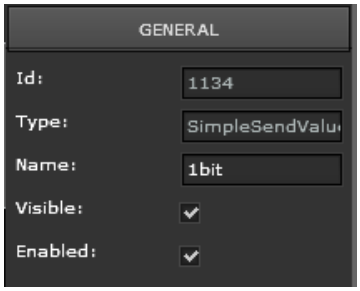
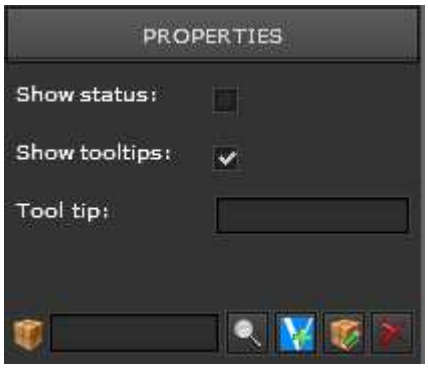
9.3. Principal properties

9.3.1. General



Id: internal ID number
Type: type of element
Name: name of the element
Visible: Tick this box if you would like the element to be displayed in the visualisation.
Enabled: Tick this box to activate the switching functions. Otherwise only status information will be displayed.

9.3.2. Properties



Show status: The current status of the element is displayed (not for text or input values).
Show Tooltip: A Help window opens if the mouse hovers over the element.
Tooltip: input field for the tooltip that is to be shown

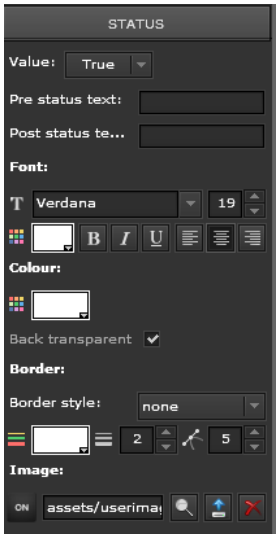
Selects an object or group address.

The selected object or group address can be edited.

A virtual object can be added.

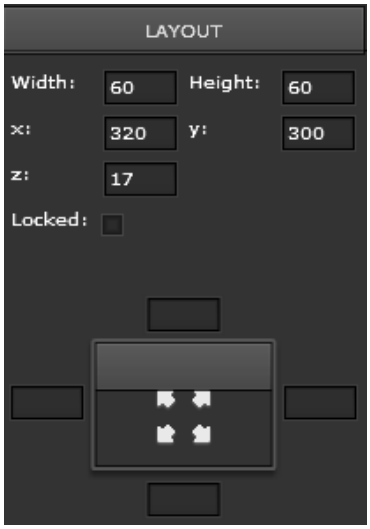
Removes the assigned communication object or group address from the element.

9.3.3. Status



Font: This is used to select the font type, font size and formatting options. All font types that are installed on the computer are available.
Font colour and formatting: selection of font colour and alignment
Background colour: option to select the background colour
Transparent: If the box is ticked, the background is transparent, i.e. not shown.
Frame: Use this option to select the border of the frame (colour, width and corner radius).
Image: You can select a background image for the control element. Use to select an image from an existing list. Use to load a new image as background. Press to delete the background image.

9.3.4. Layout



Go to layout to configure the size and position of the element.
Width: defines the width of the sides
Height: defines the height of the sides
X: defines the distance to the left of the element
Y: defines the distance to the top of the element
Z: defines in detail the position of the layer (foreground/background)
Locked: The element is blocked and can no longer be moved around the Editor.
Button: If you click in the middle, the element is adjusted to the size of the window. You can also define the distance to the window margin.

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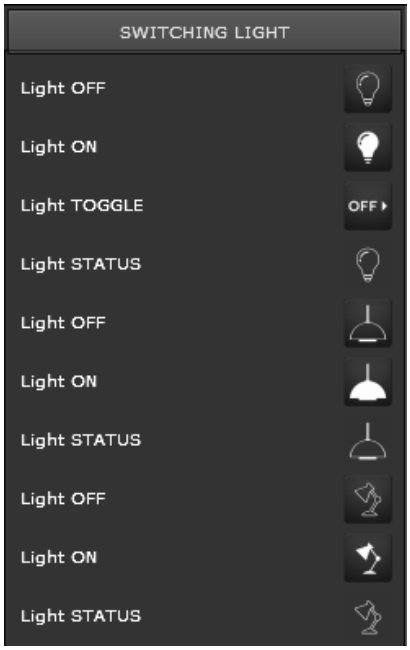
9.4. Standard and basic functions of the control elements



9.4.1. Light switch /general

The device offers two independent elements for the transmission of ON/OFF telegrams. Although value types are transmitted depending on the data point type assigned, images are always prepared as a 1 bit DPT. Toggle switches require a status value when they are visualised for the first time so that when pressed, they will transmit the inverse value. The toggle element can receive the actual status directly from the assigned communication object that was used to configure it. If no such value is received, the element will remain in an undefined status and only show the background image, not indicating whether it is ON or OFF.

9.4.2. Shutter switch

Three different switch elements are available for the control of shutters:

Blind/Shutter – 1 push-button control
Blind/Shutter UP
Blind/Shutter DOWN
Shutter UP
Shutter DOWN
Shutter STOP

9.4.2.1. Special features: Shutter

To configure the group shutter/slats UP/DOWN, you will require communication objects and additional settings:

Behaviour: It is possible to select the action of the button (up, down, toggle).

Status: Enter the position of the communication object so that the element can obtain the current status.

Short keypress: A slat adjustment/start/stop telegram is sent via this object if the pushbutton is pressed briefly.

Time short pulse: time in milliseconds that defines a short keypress

Long keypress: communication object for the Up/Down command

To configure the group *Blinds UP/DOWN/STOP* you will only need the communication objects.

As only the group address is sent in this case, please remember to select the address for the shutter run. For the stop command, however, please select the address for slat control.

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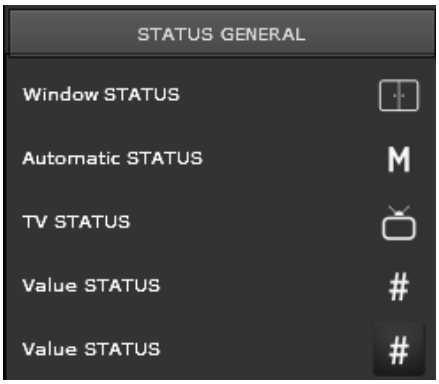
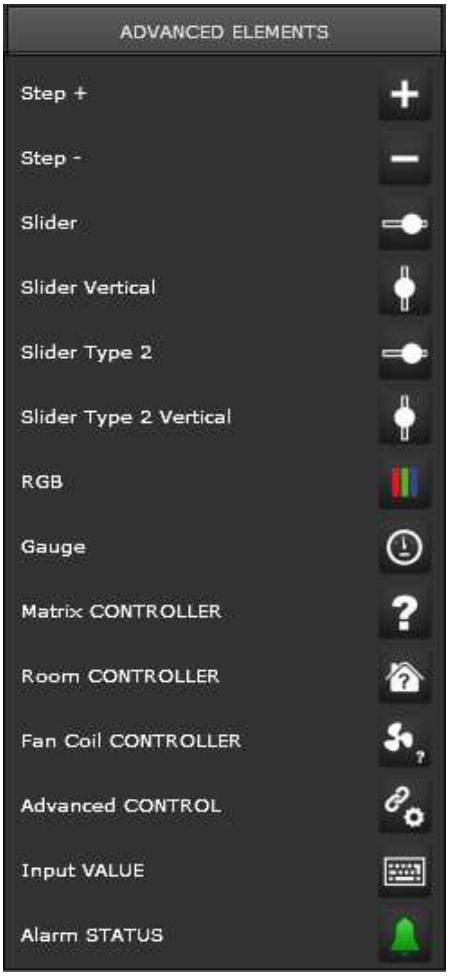


9.4.3. Status

This shows the current value of a particular DPT.
You can find the different symbols both under switch components and under the component group Status General.
The 'value status' is displayed in numbers not as an image.

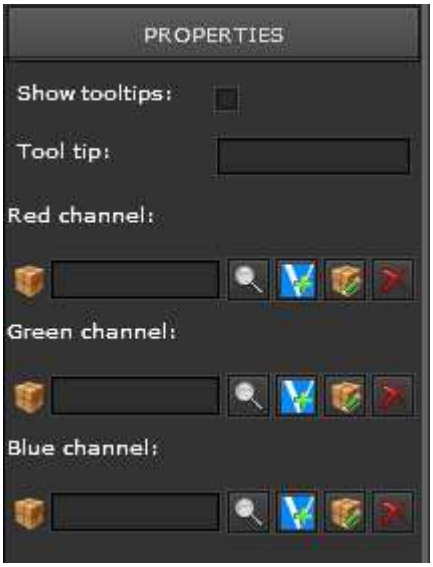


9.4.4. Advanced control elements

This component category lists different control elements for value setting.

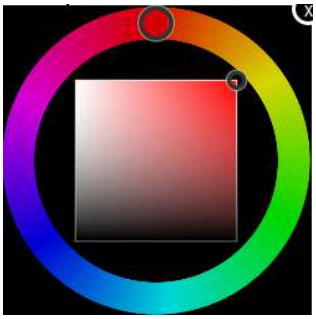
9.4.4.1. RGB Element

The RGB element is used to set RGB values via group addresses.



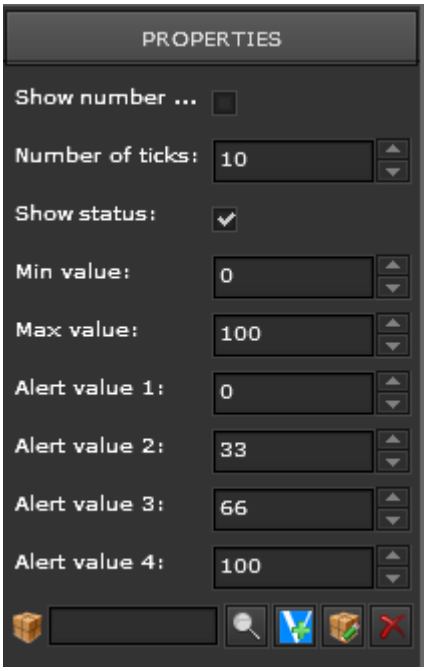
Red: Selects the object or group address for the red channel (values 0..100%)
Green: Selects the object or group address for the green channel (values 0..100%)
Blue: Selects the object or group address for the blue channel (values 0..100%)

If you click on the element in the visualisation, a colour circle appears which allows you to define colour and saturation. Use the circle to define colours and the square in the middle to define saturation.



9.4.4.2. Gauge Element

Values can be easily displayed by using this element.



Show number ticks: Values between the range will be displayed as a number.
Number of ticks: This parameter defines the number of values between the range.
Show status: if enabled the current status value will be displaed.
Min value: starting value of range
Max value: ending value of range
Alert value 1-4: It is possible to define up to 4 threshold values which will be displayed later in different colours in the runtime element.

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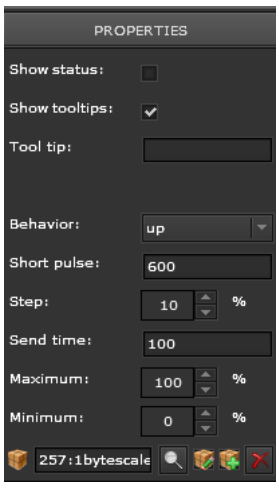
Colours and Layout of this element will be defined in the style tab.

Background colour: This is the background colour of this element. In addition there is the possibility to define the transparency of this element. The vale “1” means no transparency.
Indicator colour: This parameter defines the colour of the indicator.
Tick: This parameter defines the colour for all values between the range.
Alert colour 1-4: The colours for the alert thresholds defined above are here configured.
Text: In this parameter the font and colour of all numbers which are showed as text will be defined. This is valid for the current status as well as for all values in between.

9.4.4.3. Stepper

The value +/value - element is used to increase or decrease a value in increments. For example, it may be used for thermostats.

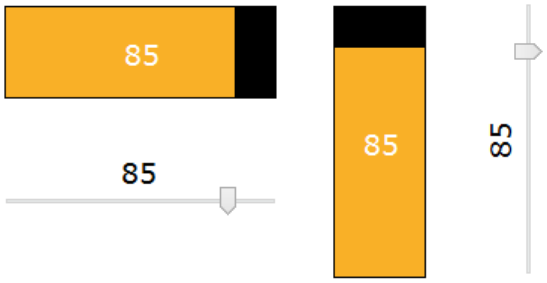


Behaviour: determines the switch behaviour (increase/decrease/toggle)
Short pulse: time in milliseconds after which a signal is deemed a long keypress
Step: increment size till the next value that is sent to the bus
Send time: the shortest time period to analyse a value that was sent to the bus
Maximum: the highest value that can be sent to the bus
Minimum: the lowest value that can be sent to the bus

9.4.4.4. Slider

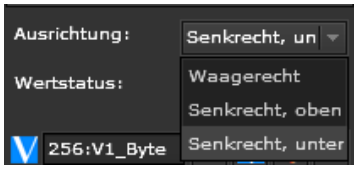
The slider can be used to regulate values without increments, for example to control a dimmer. It works like an input value-send element and therefore requires a communication object to display a value. The element can be scaled for DPT 8 bit unsigned values and DPT 8 Bit (0...100%). If “Live Dragging“ is activated, the current value is shown.

From version 1.2 upwards two different types of sliders are available:

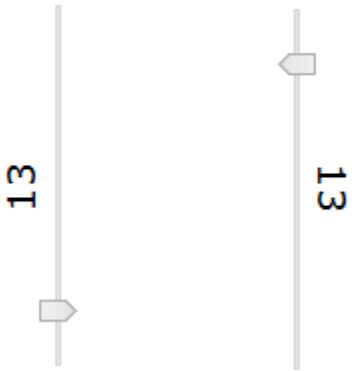


Tick the “value status“ box to display the current value or untick the box if you do not wish to display the value.

Both types can be arranged vertically or horizontally. If you choose the vertical option, you can also define whether you would like to show the maximum value at the top or bottom.



If you select “vertical top“, the minimum value starts from the “top“. This can be particularly useful for blind actuators with a position status or absolute positioning function.



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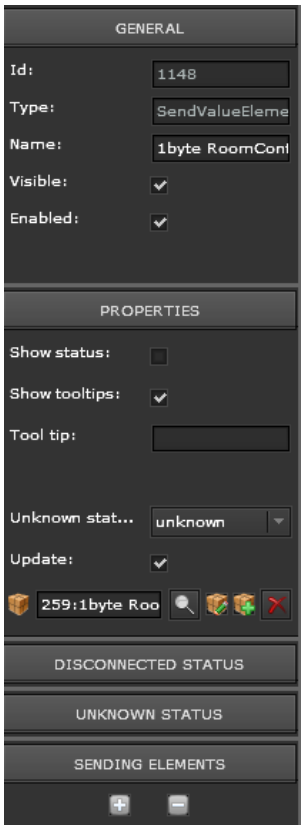
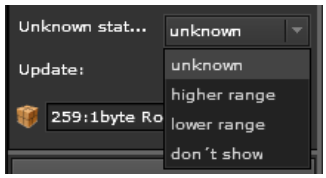
9.4.4.5. Matrix Element



You can use the matrix element to send and display different values with a pushbutton. The values can be configured individually.

First, you should define the properties and connect an object to the element.

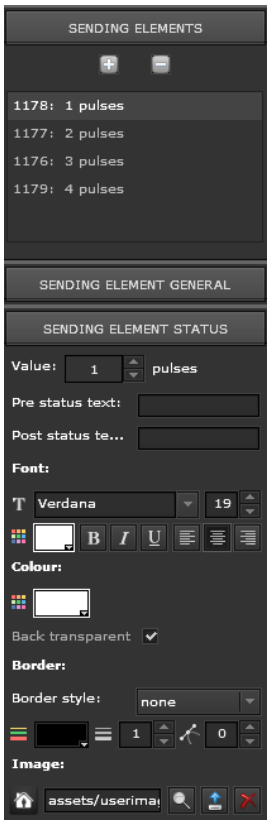
Use the parameter ‘Unknown status‘ to define which status is to be shown if the KNX status is unknown or does not match the definition.



Use the +/- buttons “Sending Elements” properties to create an individual status. Use the “Sending Elements Status” tab to define every status required for this value.

Value: This is the value that is to be sent or to be checked for.

The value can be sent either as a number with text (before or after the value) or it can be configured as an image. For the latter, please select an image from the **Image** library.



A typical example for its use is temperature control with different status types such as:

- *Comfort (value 0)*
- *Stand-By (value 1)*
- *Night (value 2)*
- *Frost protection (value 3)*

9.4.4.6. Operating mode element

This element is a pre-configured matrix element to set the operating mode of a heating controller, see previous chapter.

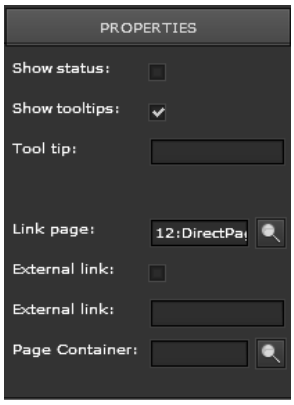
9.4.4.7. Fan element

This element is a pre-configured matrix element to control fan levels, see matrix element. 5 steps with the values 0%, 20%, 40%, 60%, 80% and 100% can be defined. The status is not displayed through the value but via different fan symbols.

9.4.4.8. Advanced element

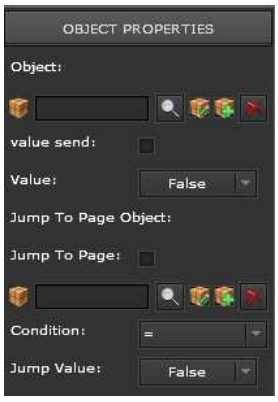
This element is very complex allowing for the realisation of different applications.
The “General“ section allows you to set a password so that a page can only be changed after entering the correct password.

1. *Application: Page changeover*



Link Page: A pop-up with all currently configured pages is displayed and a page of your choice can be displayed.
Page container: Please select whether you would like to load the page in a frame (container) or as a new page (_blank).
External link: If you tick this box, you can load an external website (e.g. a web cam).
External link: Use this field to define the http address of the external page.

2. *Application: Value setting and page changeover following a KNX event*



Value setting: If you select this setting, the value defined under **Value** is sent to the KNX when you press the pushbutton.

Jump to page: If you select this setting, you can define an object as trigger for a page changeover. In addition, you can enter the **condition** as well as the reference **value** for this condition.

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9.4.4.9. Value setting

This element is used to send a telegram with a selected value to the bus. Depending on the DPT selected, the display may vary.

Format for 1bit DPT

Format for 1byte, 2 byte, 4 byte DPT

Format for 14 byte DPT

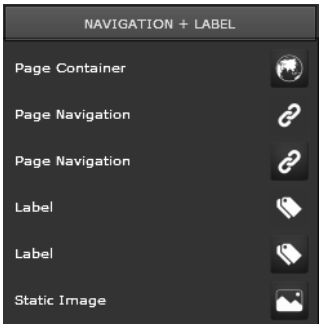
Press SEND to send the value displayed in the visualisation to the bus.

The maximum number of characters for the 14 Byte format is 14. Additional characters are automatically cut out.

9.4.4.10. Alarm Status

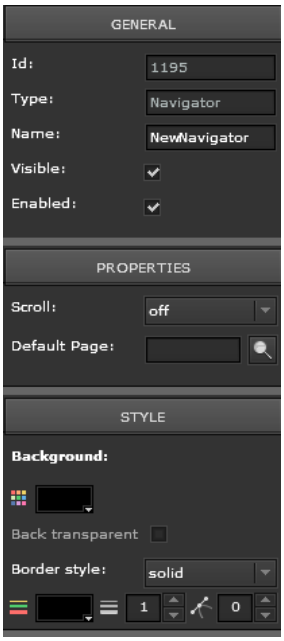
This element displays a status via a blinking alarm symbol (the function is comparable to the normal binary status).

9.4.5. Navigation + labelling



This component category lists different control elements for the navigation and for labelling.

9.4.5.1. Special features:Page container



A page container is a frame that is used to display other pages. If you drag the element into the work space, a pop-up window appears where you can select the pages for this frame.
However, you can also select these later on. The default size of the page container is 600x480 pixels. However, this size can be changed at any time.

The container is used in conjunction with the control elements for loading a web page (navigation) or external website.

This means the container makes it possible to create a frame within a website in which other pages can be displayed.

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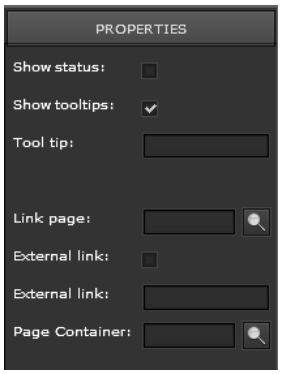
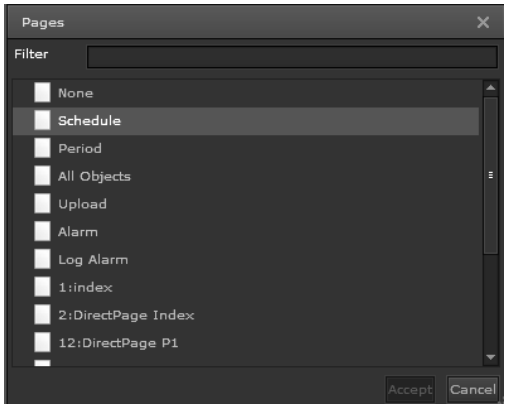
9.4.5.2. Special features: Page navigation without background image

This element is used to load other pages either in a container or on a new page.

1. *Application: Page changeover*



Link Page: A pop-up with all currently configured pages is displayed and a page of your choice can be displayed.
Page container: Please select whether you would like to load the page in a frame (container) or as a new page (_self).
External link: Tick this box to load an external website (e.g. a web cam).
External link: Use this field to define the http address of the external page.



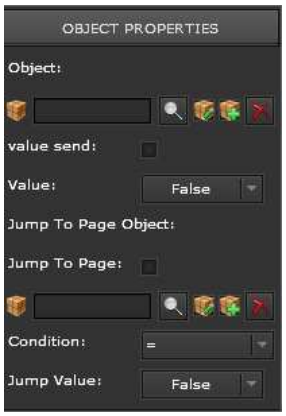
The list of pages does not only show the already configured visualisation pages but also the pages that are predefined by the device such as:

- *Schedule*
- *Period*
- *All objects*
- *Upload*
- *Alarm*
- *Log Alarm*

When selecting the page container, the option "_blank" is only available for external links.

The option "_blank" opens a new window in IE and a new tab in Firefox.

1. *Application: Value setting and page changeover following a KNX event*



Value setting: If you select this setting, the value defined under **Value** is sent to the KNX when you press the pushbutton.

Go to page: If you select this setting, you can define an object as trigger for a page changeover. In addition, you can enter the **condition** as well as the reference **value** for this condition.

This element is almost identical to the advanced element. The only difference is that no values can be shown in this case. It is used together with the text as a link element to load other pages.

9.4.5.3. Special features: Page navigation with background image

The element is identical to the previous one apart from the fact that it has a pre-defined background.

9.4.5.4. Special features: Label

This element is used to describe another element. Please enter the description in the text field.

To avoid errors in the text display, please do not use the backlash symbol.

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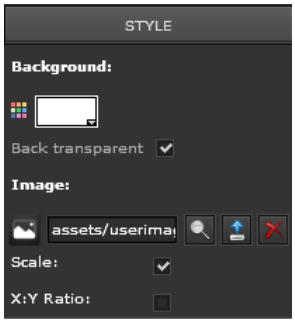
9.4.5.5. Special features: Background image



Background: This is used to select the background colour.

Image: Use to select an existing image from a list and to upload new images. deletes the current image from the element.

Scale: Tick the Scale box to adjust the image to the resolution set under Properties.

X:Y Ratio: retains the width-to-height ratio when the image is resized.

Use followed by “Remove image“ to remove already uploaded images from the flash-memory.

10. Modules

ComBridge HCC offers the user a wide range of functions to easily and effectively automate a KNX system. The functions are structured in a modular manner. Go to the main menu Modules to select a function. The different modules are described below:

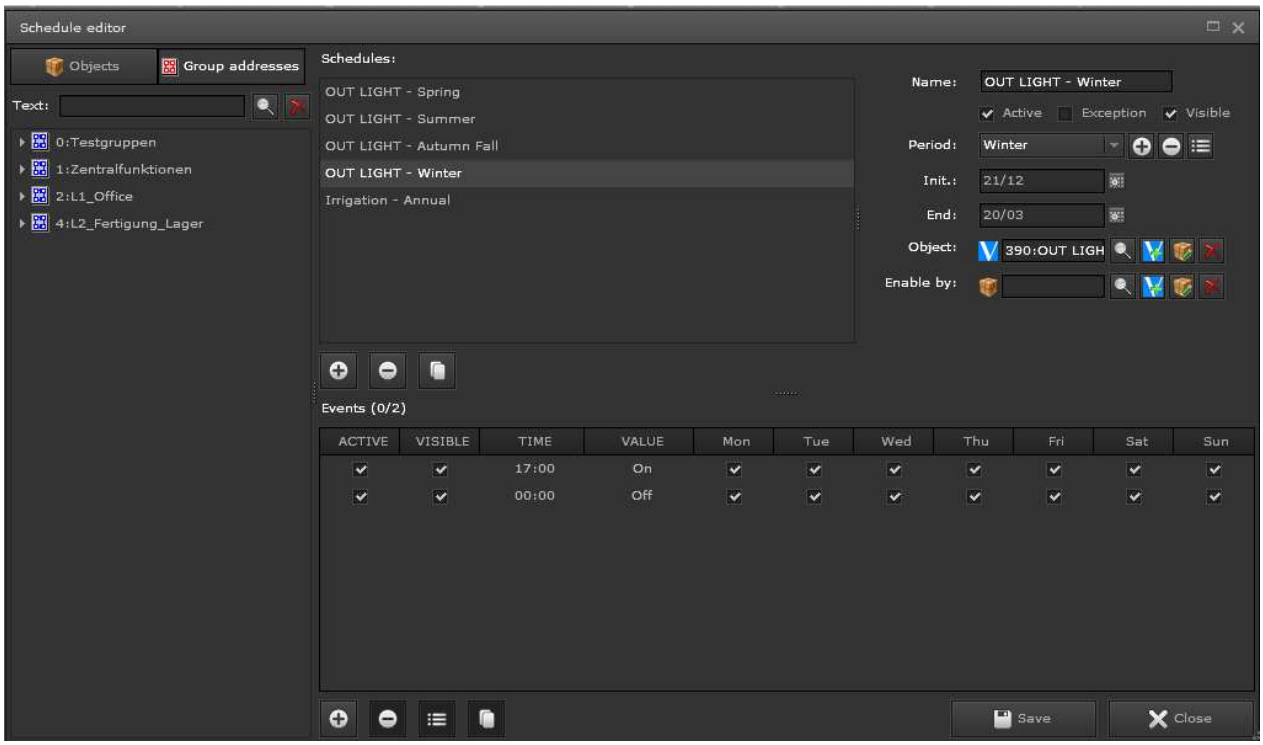
The Modules menu:

-Scheduler
-Logic control
-Scene control
-Alarm control

10.1. Scheduler

ComBridge HCC allows for the creation of up to 300 weekly time switch commands with up to 30 events each. To start the configuration, select the schedules module in the Editor.

The following figure shows the Editor window for a schedule.



The configuration window for schedules contains on the left hand side the object list or the treeview of group addresses. Previously created schedules are shown on the centre. The right-hand side shows the menu for basic settings.

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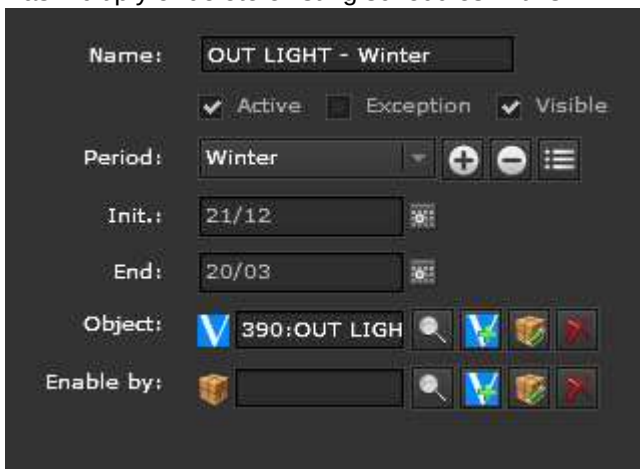
You can add new schedules as well as multiply or delete existing schedules in this section.

Select a schedule and fill in the right-hand side with the required details:

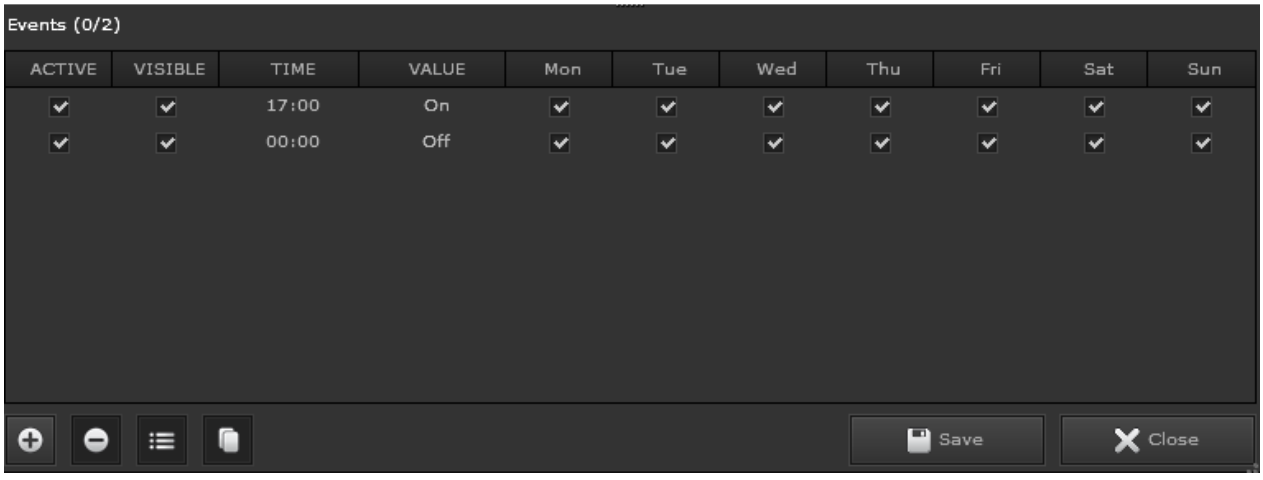


Name: of the schedule

Select first the object and the name is filled automatically based on the object name.

Active: activates/de-activates the schedule
Exception: If you tick this box, the time period entered for this schedule will be applied to all other schedules that are linked within the object.
Visible: If you tick this box, the schedule becomes visible to the user enabling the user to make changes.
Period: By default, each scheduling module is set to an annual cycle. You can select other time periods with the buttons to the right of the field. The **beginning** and the **end** of a period are shown in the fields below. You can use the calendars next to the fields to select a date.
Objects: defines the object or group address for which the schedule is created.
Enabled by: The schedule may be triggered by the status of another object and will only be executed if the value of the enabling object is “1”.

The following section shows you how to set up events for a schedule. Up to 30 events are possible per schedule.



- **New:** *adds a new event*
- **Clone:** *copies the currently selected event and inserts it with identical properties*
- **Edit:** *edits the selected event*
- **Remove:** *deletes the selected event*

Active: activates/de-activates the event.
Visible*:* If you tick the box, the schedule becomes visible to the user.
Days of week: allows the selection of the week days on which the event will take place
Time: allows the selection of the time when the event will start
Value: Value entry. The field selection varies depending on the DPT.

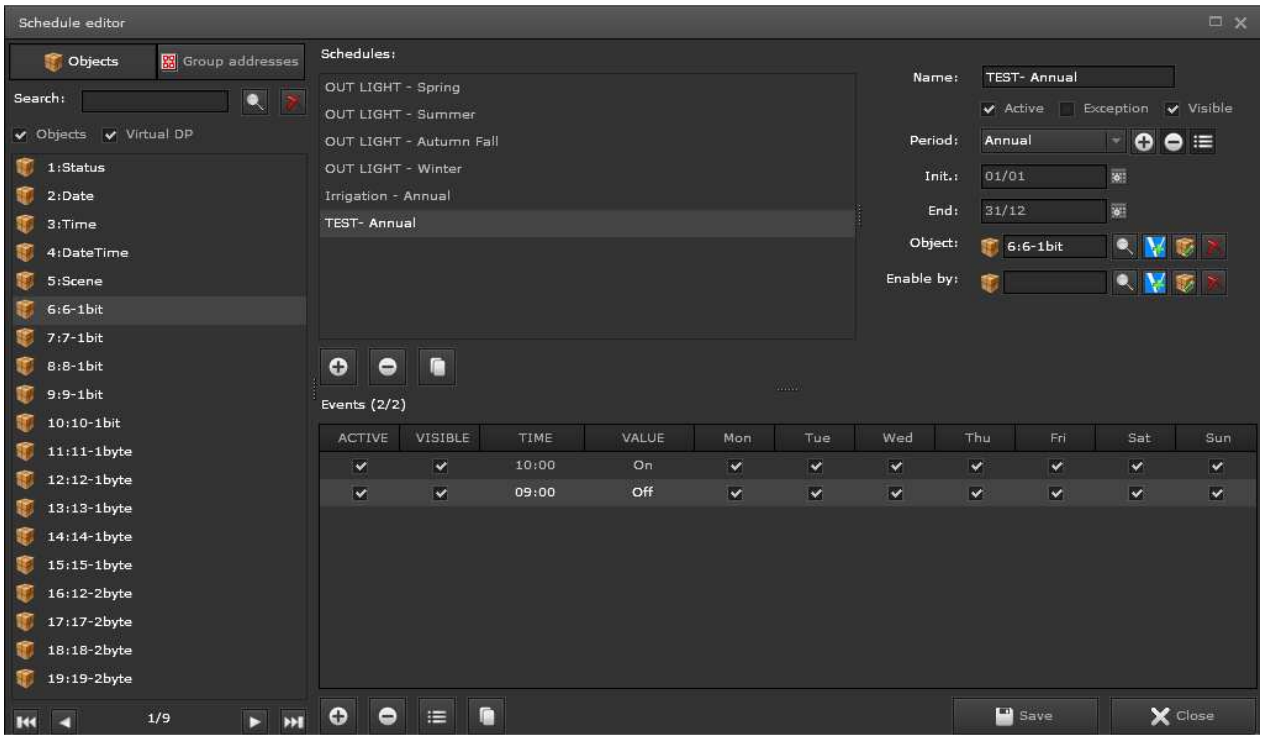
.

Entries can be directly edited in the table view. This method save time!

10.1.1. Example of a schedule

The following is an example of a schedule. The name given to the schedule in this example is “winter“. The sent object has number 390.
In our example, 2 events have been configured:

1. *Monday to Sunday, Object 6, Start at 9:00 h (Value 1), End 10:00 (Value 0)*



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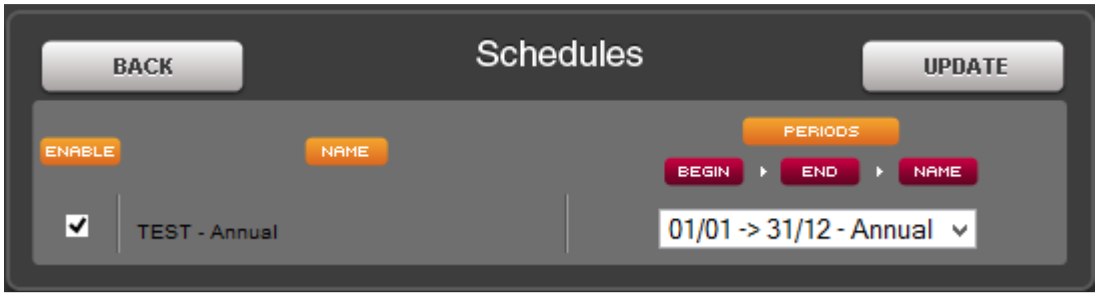
10.1.2. The user web-interface: Time schedule

Once the configuration in the Editor is complete, the user can make changes on the visualisation page.

You will need to create an appropriate link in the visualisation in order to display the current schedule on the visualisation page.



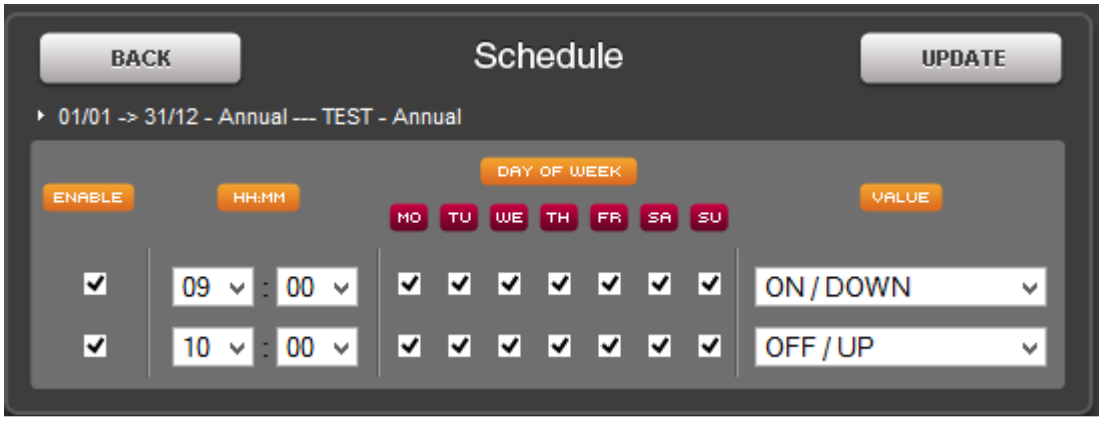
The user can only make changes if you ticked the option “Visible“ in the properties section.

The following options are available on this page:
Enable: activates/de-activates the schedule
Name: This is the name that was assigned to the plan in the Editor. Click on the mouse to open a window where you can make changes to the name.
Period: shows the assigned time period.

returns to the original visualisation page

saves your settings

Click on the text in the “Name“ column to open a further configuration window:



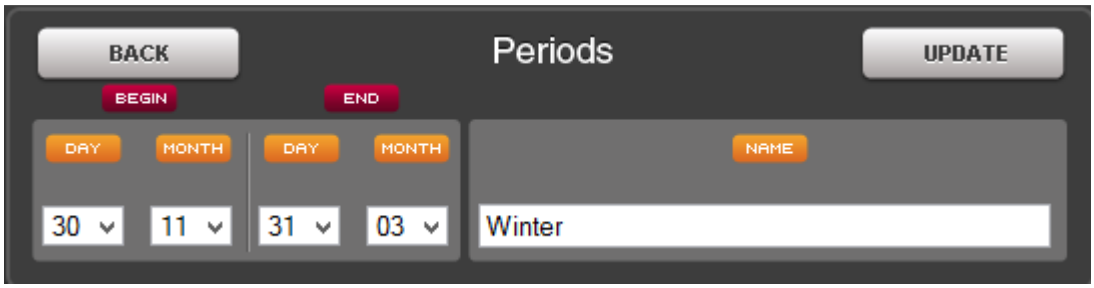
The info bar at the top shows the *period*, the *period name* and the *name of the schedule*.
Enable: activates/de-activates individual events
HH:MM: drop-down menu to set up the time of the event
Days of week: activates/de-activates individual week days
Value: makes it possible to change the value that is sent to the bus

The setting options depend on the DTP selected in the Editor.

BACK returns to the original visualisation page
UPDATE saves your settings

10.1.3. The user web-interface: periods

Once the period settings in the Editor are complete, the user can modify the settings on the visualisation page. To access the web interface, you will need to create the appropriated link in the visualisation in order to display the current schedule on the visualisation page.



Begin: the beginning of the period
End: the end date of the period
Name: name of the period

BACK returns to the original visualisation page
UPDATE saves your settings

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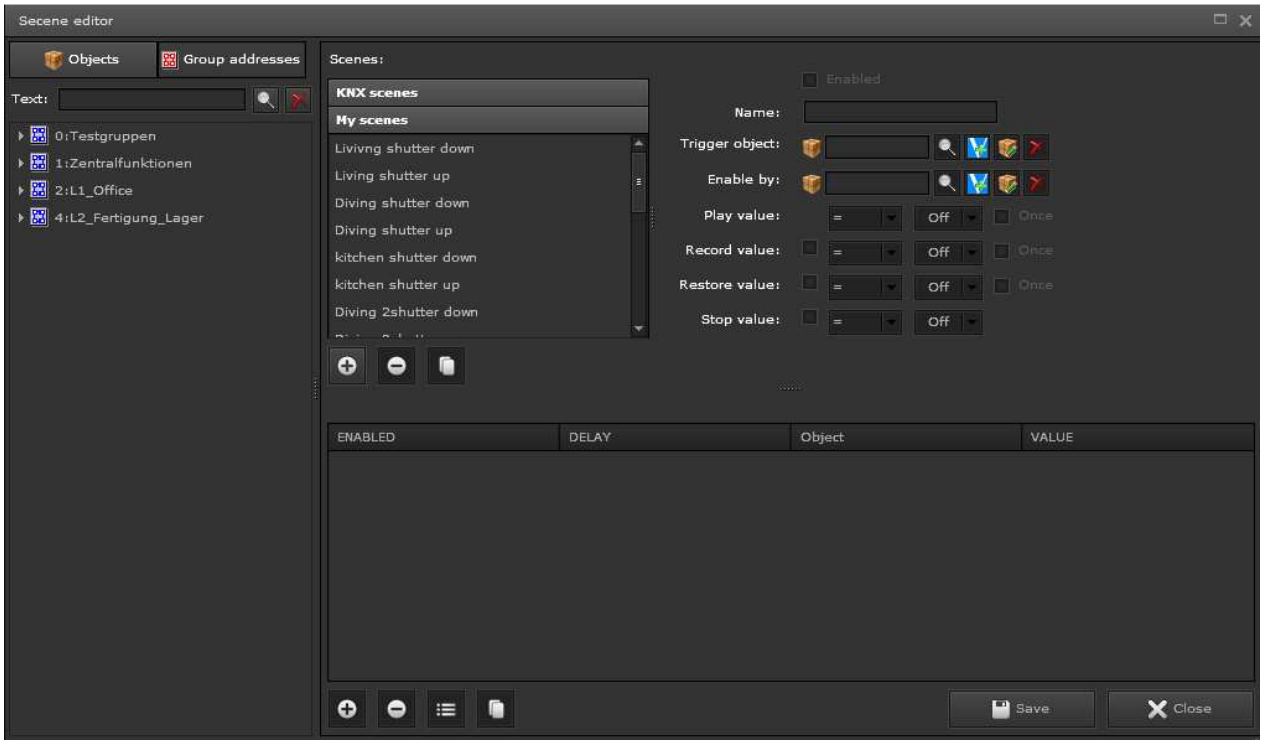
10.2. Scenes

The Scenes Module in ComBridge HCC allows for the configuration of up to 5000 scenes or events. This number includes 64 KNX scenes. One scene consists of a list of events with communication objects that are launched by a trigger object.

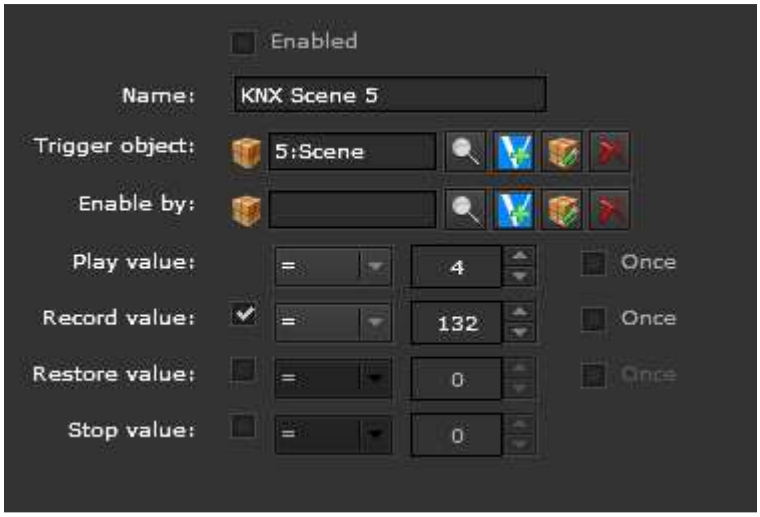
The scenes control menu can be opened from the main menu of the Editor by clicking on Modules /Scenes Control.

The configuration window for scenes contains on the left hand side the object list or the treeview of group addresses followed by pre-defined scenes with the name KNXScenes (scenes that can be invoked via the central scenes object) as well as user-defined scenes called MyScenes.



10.2.1. KNX scenes

For the use of KNX scenes there are fixed parameters defined by the KNX standard specifications.



Enabled: enables/disables a complete scene
Name: name of the scene
Trigger object: Name of the trigger object. Click on to select the trigger object of your choice from a list.
Enabled by: enables/disables a complete scene via communication object ort group address
Play value: Select the logical trigger condition and the number of trigger impulses required to invoke the scene.
Record value: Select the logical trigger condition and the number of trigger impulses required to record the scene.
Restore value: Select the logical trigger condition and the number of trigger impulses required to restore the scene. This function is not supported by KNX scenes.
Stop value: Select the logical trigger condition and the number of trigger impulses required to stop the scene. This function is not supported by KNX scenes.
Once: If you tick this box the linked action will only be performed once. The scene will only be re-started on receipt of a new value.

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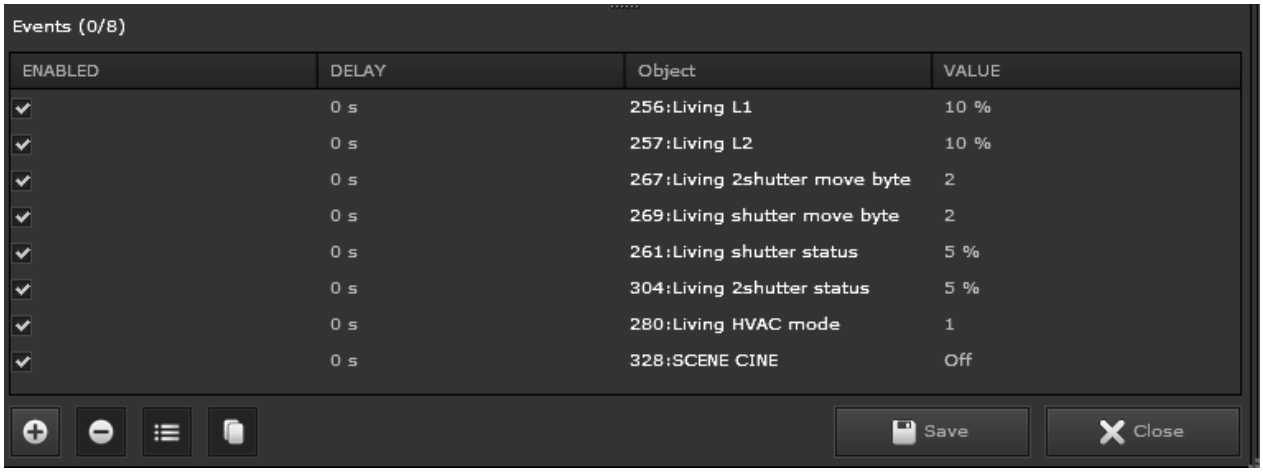
Each scene contains an area for the configuration of events:



Enabled: enables/disables a selected event
Delay: time delay between the start of events
Object: the trigger object or group address which sends the value to the bus
Value: the value which is sent to the bus. The display depends on the selected DTP.

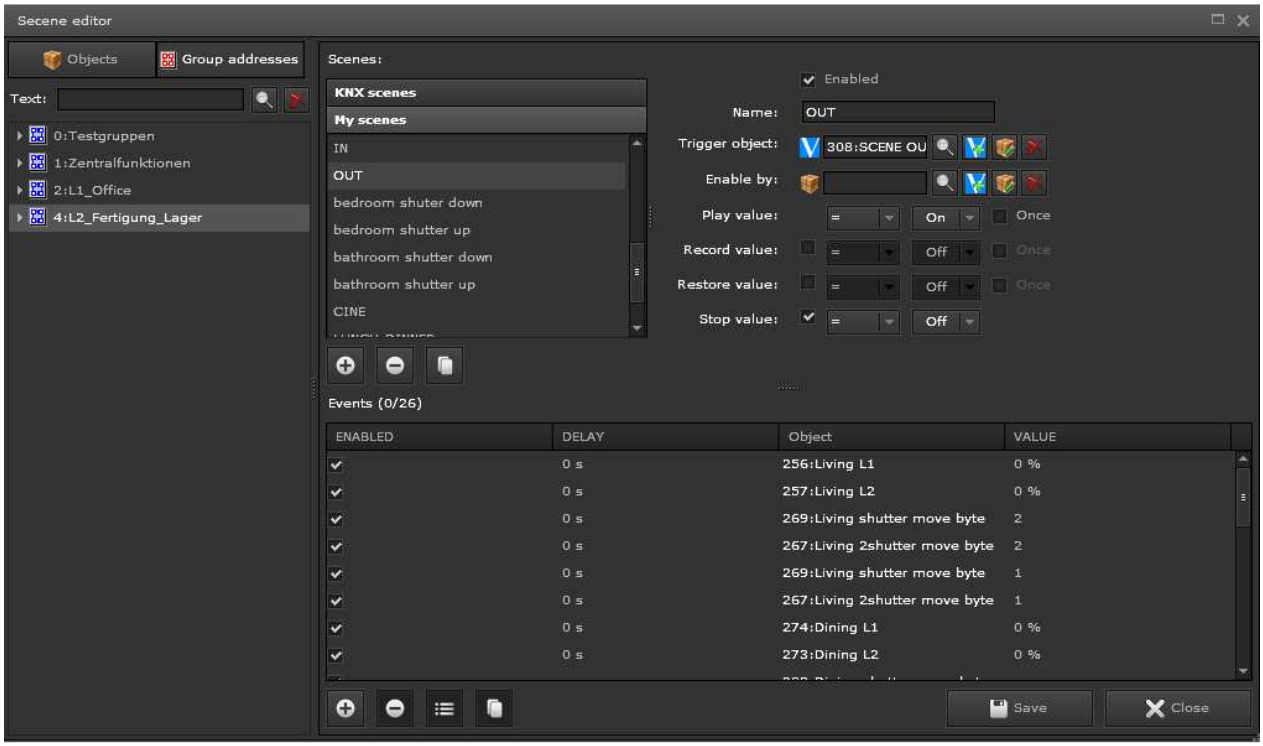
If the scenes editor is open and a scene is being recorded at the same time within the project, the changed values are transferred to the scenes module once the recording has finished. If the Editor was already open, the changes will only show on the device once the Editor has been re-started.

Object or group addresses can be linked via drag&drop from the group address tree view.

14 Byte DPT cannot be used as trigger objects for a scene. If you use alphanumerical or numerical characters to start a scene, the scene will not be executed.

10.2.2. My scenes

The following figure is an example of a standard scene:



Enabled: enables/disables a complete scene
Name: name of the scene
Trigger object: name of the trigger object. Click on the magnifying glass to select the trigger object of your choice from a list.
Enabled by: enables/disables a complete scene via communication object ort group address
Play value: Select the logical trigger condition and the number of trigger impulses required to invoke the scene.
Record value: Select the logical trigger condition and the number of trigger impulses required to record the scene.
Restore value: Select the logical trigger condition and the number of trigger impulses required to restore the scene.
Stop value: Select the logical trigger condition and the number of trigger impulses required to stop the scene.
Once: If you tick this box the linked action will only be performed once. The scene will only be re-started on receipt of a new value.

Object or group addresses can be linked via drag&drop from the group address tree view.

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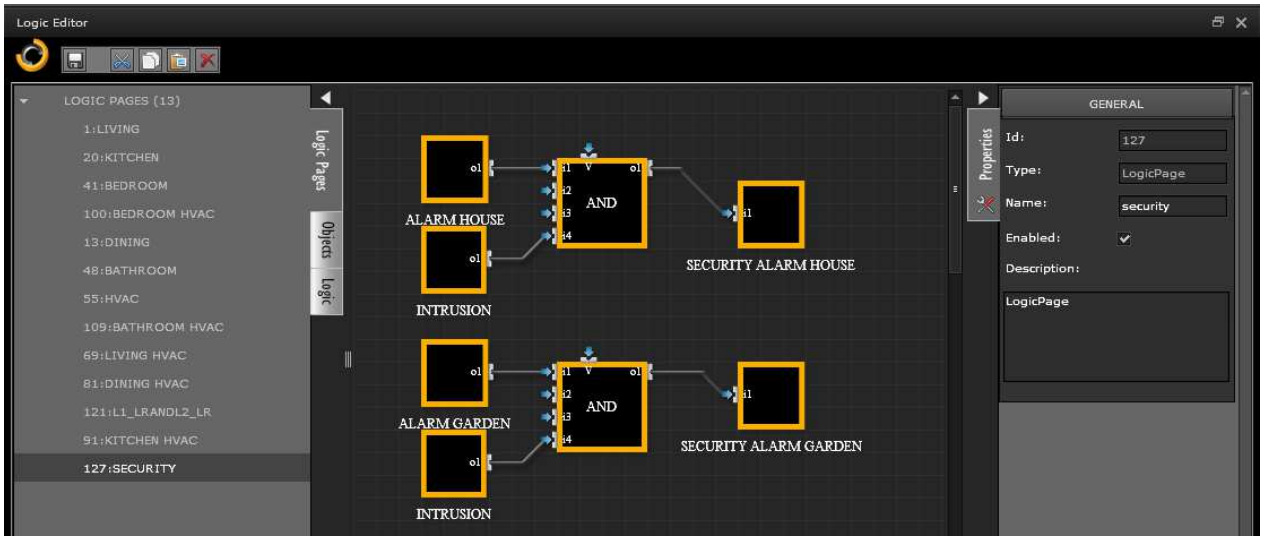
10.3. Logic module

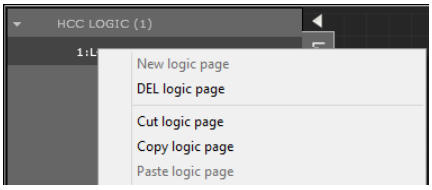
ComBridge HCC offers the user a powerful, graphical logic module. In addition to standard gates such as “AND“, “OR“, “INVERT“, comparators, mathematical operators, converters, gates and others can be used in complex logic plans. The fully graphical work space makes the configuration quick and easy. Start the logic module with Modules/Logic Control.

The following image shows the window of the logic editor.



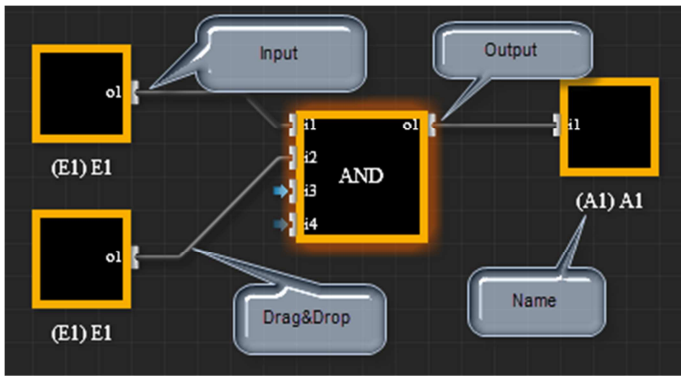
The tool bar offers the following functions:

saves the logic plan in the Editor
inserts a copy of the selected element
cuts the selected element
copies the selected element
deletes the selected element



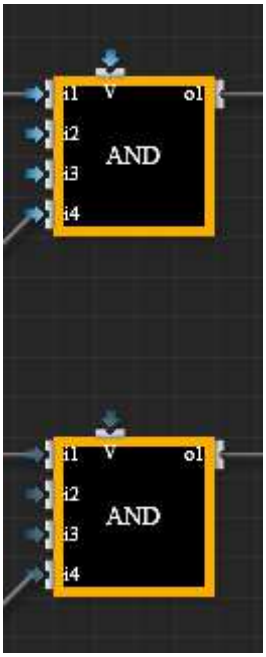
Logic plans can be organised in up to 40 different folders on the left-hand side. Each contains a group of functions which can consist of up to 25 logic elements. This means that altogether up to 1000 logic functions are possible.

You can also copy entire logic pages. Click on the required logic page with the right mouse button and select Copy Logic Page from the context menu.



The central element of a logic function is the logic gate with inputs on the left hand side and outputs on the right hand side. Inputs and outputs are configured with the respective communication elements. If the connector of a logic element is selected with a pressed-down left mouse button, a line to another connector can be created by dragging the mouse along. If the contact has been successful, the colour of the line changes from grey to green. Select an element to configure its parameters in the menu on the right hand side of the Editor. The general properties are the same for all existing logic functions.

10.3.1. Principal settings for logic gates



From version 1.2 upwards, all logic gates can be enabled or disabled either via an object or a group address. To do so, please connect the input to an object.
If you choose input “1“, the gate is executed. If the value at the input is “0“ the gate is disabled an no signal is processed.

Remember: If you change the activation input from 0 to 1 (enable) the logic is directly executed.

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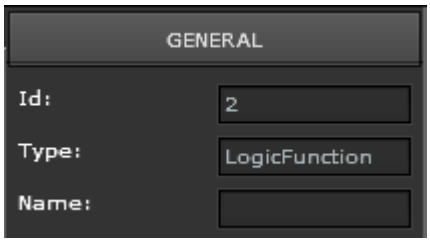
10.3.2. Logic inputs and outputs

Click on the “Logic“ tab to open the logic elements menu.

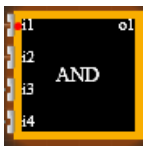


General:

The ID and type are assigned automatically.
Name: A name can be assigned for easier identification. The name is displayed underneath the element.

Properties:

Communication objects can be selected for inputs and outputs. If a communication object is configured for the first time, it is automatically assigned the name of the logic element. If the communication object is changed, the name has to be adjusted manually.
Logic inputs have one input per element. Select the input to configure the corresponding properties.
Logic outputs have one output per element. Select the output to configure the corresponding properties.

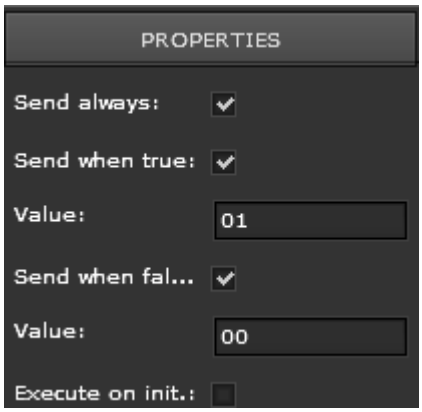


To invert the input or output of a logic gate, please use the properties menu.
The input or output block cannot be inverted.

From version 1.2 upwards you can define a periodically sending output. To do so, you need to enable this feature and define the sending interval in seconds.

10.3.3. Logic gates

Three types of logic gates are available: comparators, mathematical operations and binary functions.
All gates have four inputs and one output. Select a gate to configure its properties.



Send always: If you tick this box, the trigger conditions are analysed every time a telegram is received at the input and the result is sent to the bus.
Send when... (true): The value is only sent when the condition is true.
Value: value that is to be sent
Send when... (false): The value is only sent when the condition is false.
Value: value that is to be sent
Execute on init: If you tick this box, the trigger conditions are analysed after every download, reset or re-stat of the device and the result is sent to the bus.

To run the option “execute on init“, the parameter ”read object values on init“ has to be active.

If an input has no value, the status is undefined. In this case the trigger conditions are not analysed.

It is also possible to send analogue values based on a binary condition.

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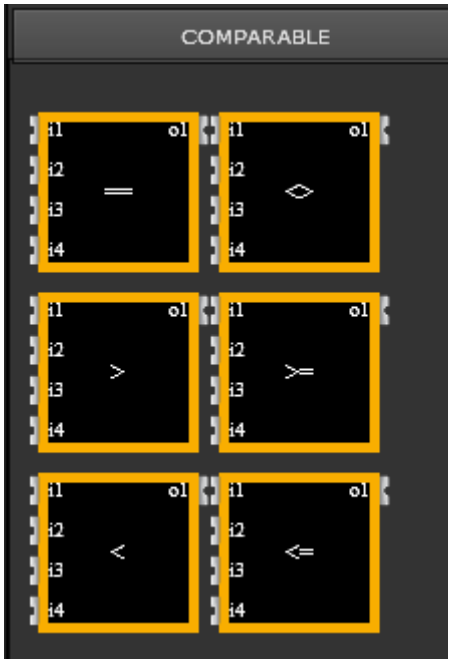
10.3.4. Comparator

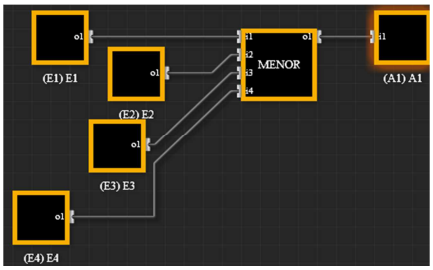
These gates compare the inputs with one another



The following compare functions can be selected in the properties menu:

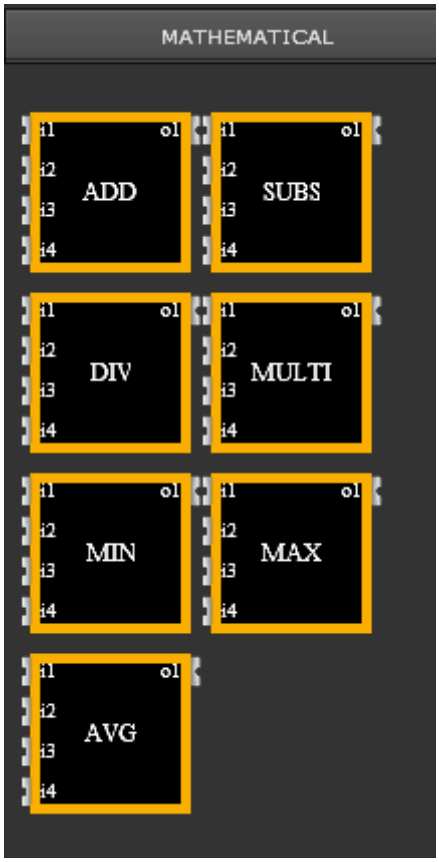
EQUAL	E1 = E2 = E3 = E4 = A1
MENOR	E1 < E2 < E3 < E4 = A1
MAYOR	E1 > E2 > E3 > E4 = A1
DISTINCT	E1 <> E2 <> E3 <> E4 = A1
<=	E1 <= E2 <= E3 <= E4 = A1
>=	E1 >= E2 >= E3 >= E4 = A1

Example of a comparator operation with 4 inputs:

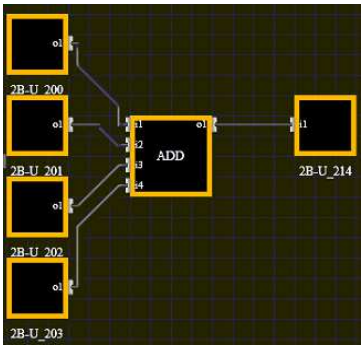


10.3.5. Mathematical functions

These logic gates calculate a mathematical function depending on the input values. The inputs are linked to an operator and calculated. The result is sent to the bus.



PLUS: E1 + E2 + E3 + E4 = A1
MINUS: E1 - E2 - E3 - E4 = A1
MULTIPLIED: E1 * E2 * E3 * E4 = A1
DIVIDED: E1 / E2 / E3 / E4 = A1
MINIMUM
MAXIMUM
AVERAGE



Example of an addition of 4 inputs

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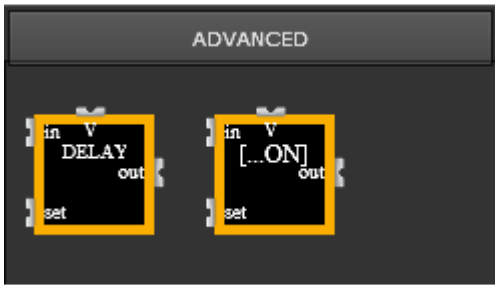
10.3.6. Advanced functions

This tab contains time and delay functions.

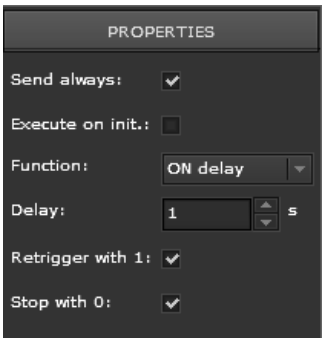


Delay function:

The input [in] is sent to the output [out] after a delay.
The delay time is defined in seconds.

The delay time can be changed from the outside via the [set] input. Use a communication object or a group address to set a value that overwrites the delay time. This value is saved permanently so that the change is also visible and active in the Editor after a restart.

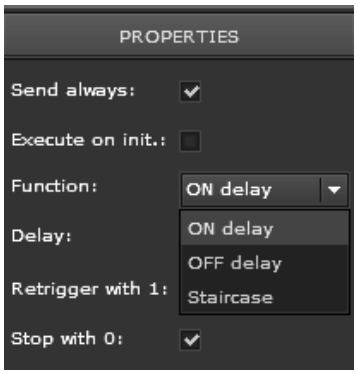
ON/OFF/staircase function:



After a delay time the input [in] presents itself at the ouput [out] in different ways. The delay time is defined in seconds.

The following functions can be selected:

- *ON delay*
- *OFF delay*
- *Staircase*



The behaviour can also be defined in more detail:

Function: ON delay:

A “1“ event at the input is sent to the output after a delay.

Option re-trigger with 1

- ***enabled****: if another “1“ is received at the input [in], the delay time is restarted.*
- ***disabled****: if another “1“ is received at the input [in], the delay time is not restarted and the “1“ event is sent to the output after the initial delay time has expired.*

Option stop with 0

- *enabled: if a “0“ is received, the delay time can be stopped immediately and the event is not sent to the output.*
- *disabled: if a “0“ is received, a “1“ event is still sent to the output after the delay time.*

Function: OFF delay:

A “0“ event at the input is sent to the output after a delay.

Option re-trigger with 0

- ***enabled****: if another “0“ is received at the input [in], the delay time is restarted.*
- ***disabled****: if another “0“ is received at the input [in], the delay time is not restarted and the “0“ event is sent to the output after the initial delay time has expired.*

Option stop with 1

- *enabled: if a “1“ is received, the delay time can be stopped immediately and the event is not sent to the output.*
- *disabled: if a “1“ is received, a “1“ event is still sent to the output after the delay time.*

Function: staircase

A “1“ event at the input is immediately sent to the output and after a delay time reset to “0“.

Option re-trigger with 1

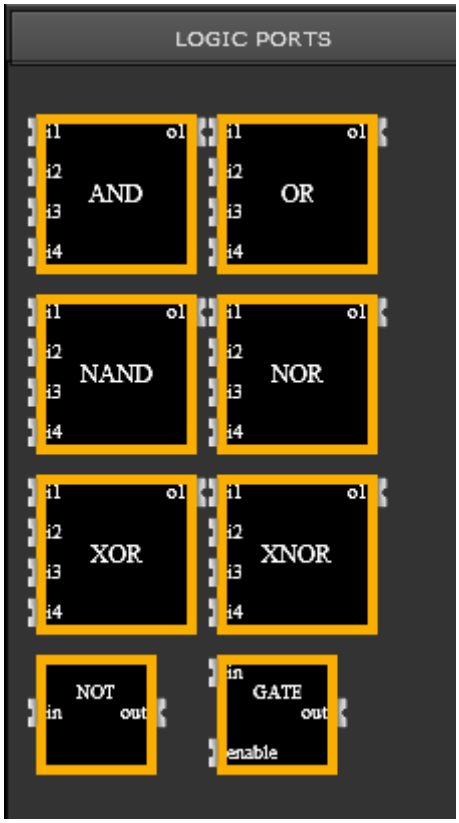
- ***enabled****: if another "1" is received at the input [in], the delay time is restarted and the output therefore reset later.*
- ***disabled****: if another "1" is received at the input [in], the delay time is not restarted and the "1" event is sent to the output after the initial delay time has expired.Only afterwards can the function be activated again.*

Option stop with 0

- *enabled: if a "0" is received, the delay time can be stopped immediately and the "0" event is immediately sent to the output.*
- *disabled: if a "0" is received, a "0" event is only sent to the output after the delay time.*

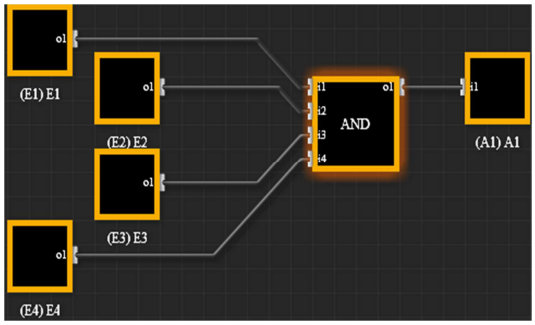
The delay time can be changed from the outside via the [set] input. Use a communication object or a group address to set a value that overwrites the delay time. This value is saved permanently so that the change is also visible and active in the Editor after a restart.

10.3.7. Logic ports



Use these ports to create logic connections with the standard gates **AND, NAND, OR, NOR, XOR, XNOR, NOT** and **GATE**. Up to four inputs can be connected to a logic port.

AND:	E1 ^E2 ^ E3 ^ E4 = A1
OR:	E1 v E2 v E3 v E4 = A1
NAND:	E1 ^E2 ^ E3 ^ E4 = A1
NOR:	E1 v E2 v E3 v E4 = A1
XOR:	E1 ^E2 ^ E3 ^ E4 = A1
XNOR:	E1 v E2 v E3 v E4 = A1



Example of an AND logic gate with 4 inputs.

In all logic modules, the order of the calculation is the same. The results from the calculations of I1 and I2 are used for the calculation of I3. This is then used as the basis for the calculation of the final result with I4.

Please remember this order to avoid errors with calculations using DIV, SUB, MAYOR, MENOR and AVERAGE.

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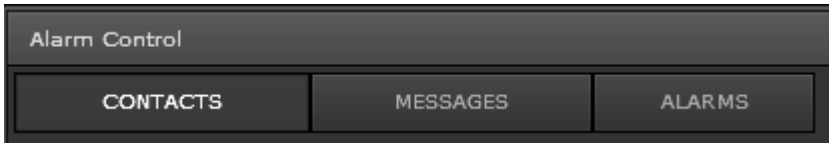
10.4. Alarm module

The ComBridge HCC offers 250 different alarms, the issuing of 250 messages and the creation of 20 contacts with the possibility of assigning 2 e-mails per contact. An alarm is linked to a communication object that is launched by a configured value.

The module registers all current states of an alarm system and displays them in detail. Alarms can both be displayed in a window on the visualisation page or they can be sent by e-mail to a pre-determined address.

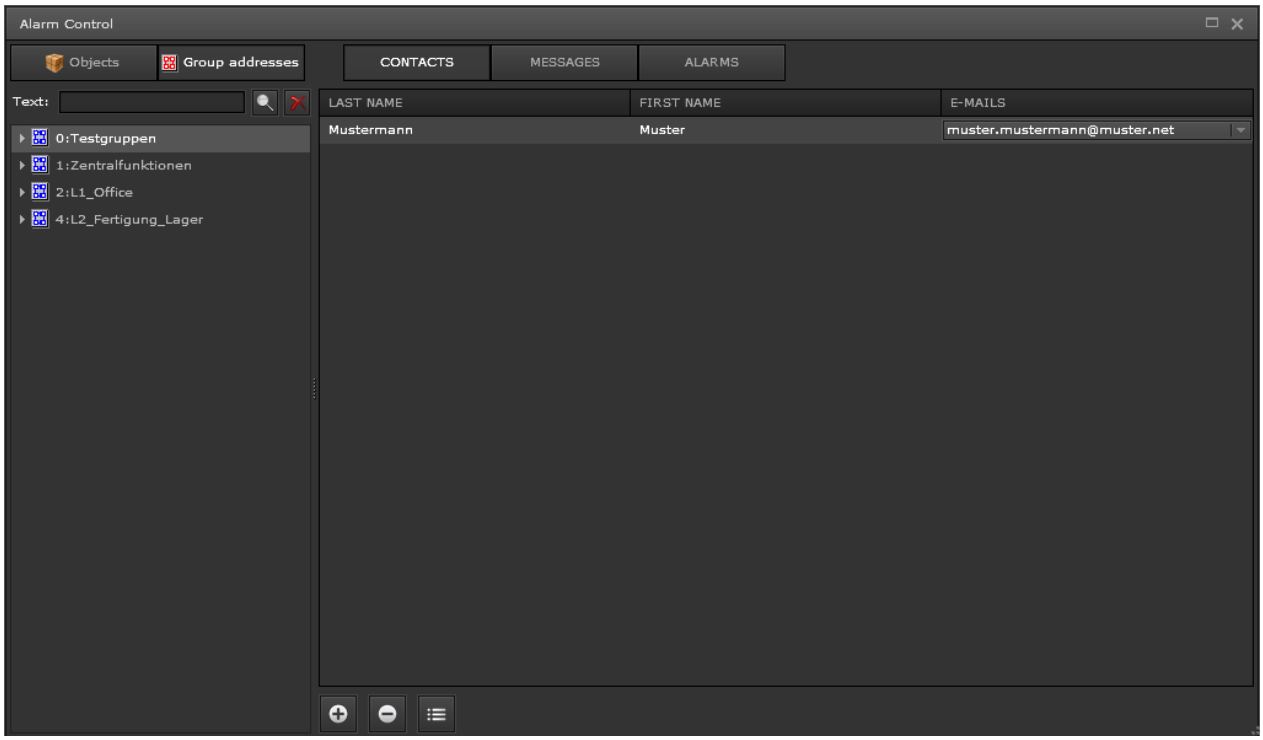
The Alarm module can be opened from the main menu of the editor by clicking on Modules / Alarm Control.

Three settings are required to configure the alarm module.



Contacts: contacts that are to be notified in case of an alarm
Messages: definition of the message text and assignment of e-mail addresses
Alarms: conditions that will trigger an alarm

10.4.1. Contacts



The contact list can contain a maximum of 20 addresses with 2 notification texts. Click on ADD to open a window where you can enter the name (compulsory entry) for the contact address. Please save the entry before you enter the e-mail address.

Now click on to open a window where you can enter the e-mail address.

These contact details will be used for the alarm management and alarm notification.

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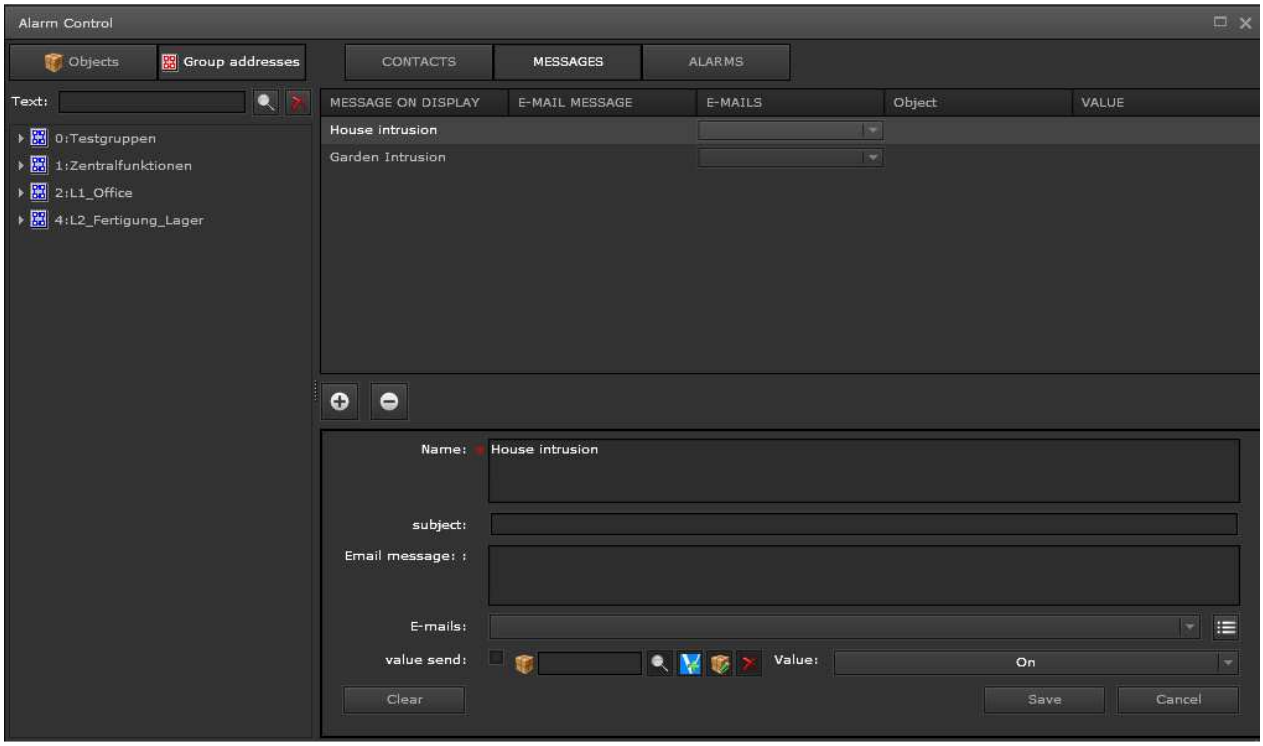
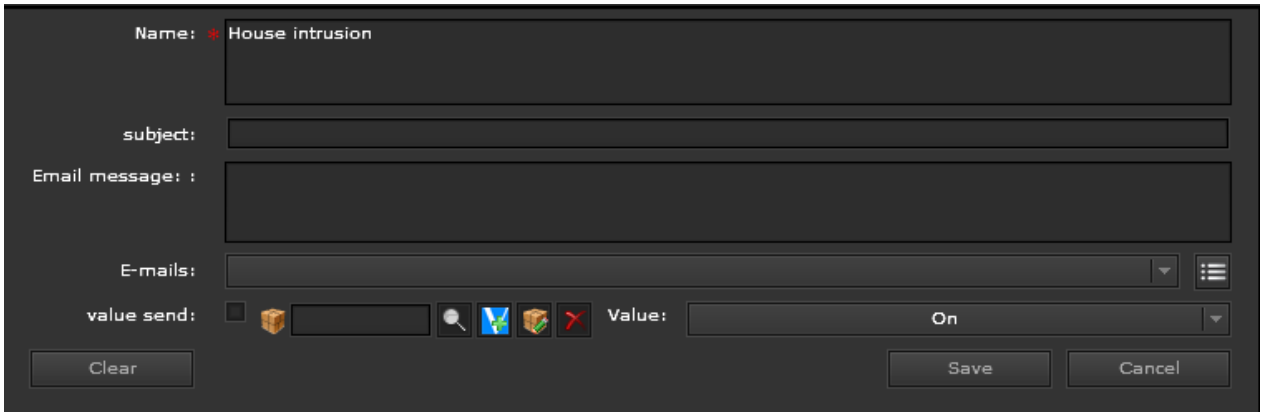
10.4.2. Messages

Use this section to configure the alarm notifications required for the project.

The parameters are displayed in lines as shown in the example below:



Click on the ADD button to open a window where you can enter a new message. Use DELETE to delete an existing alarm.

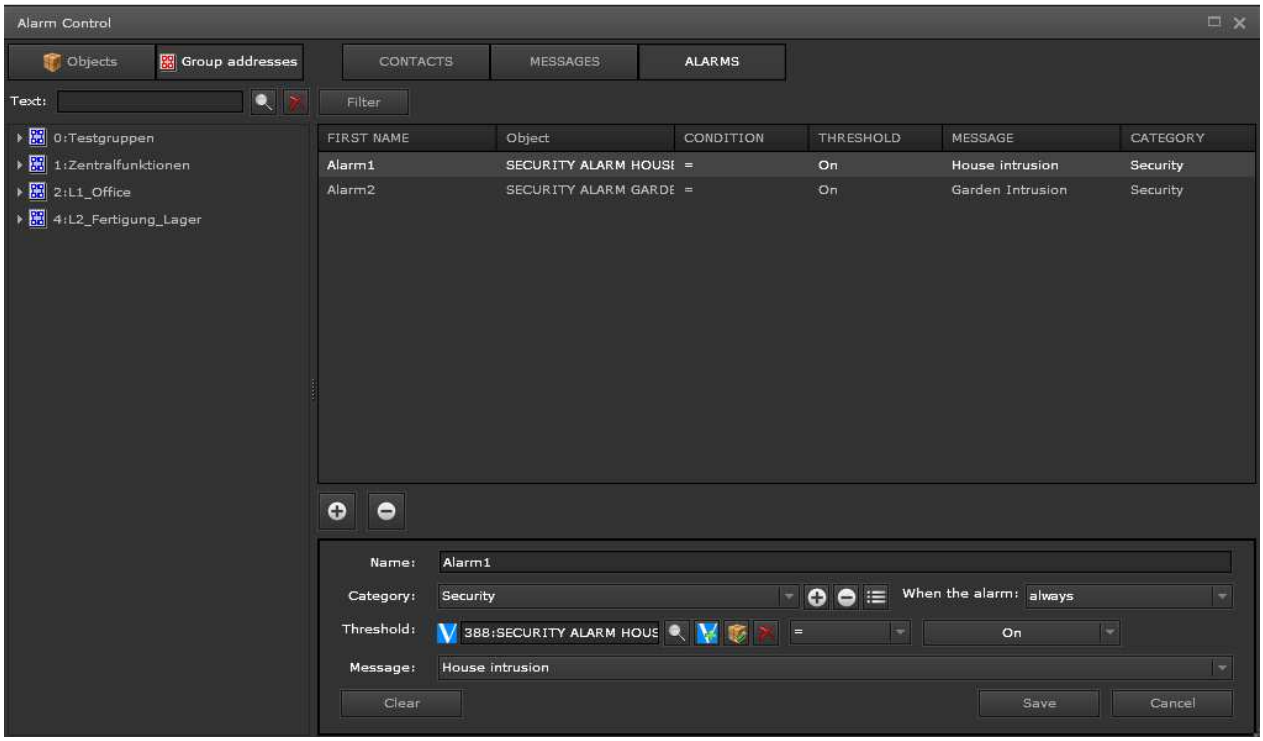


Name: name of the alarm
Subject: subject line of the message
Message: the message text that is sent with the e-mail
Email: e-mail recipient
Value Send: sends a value to the linked communication object

Value: the value that is sent to the bus
Once you have completed all the entries, please press Save. If you press Delete, all entries are deleted. Cancel closes the window without saving the entries.

10.4.3. Alarms

Use the alarm window to configure the alarm conditions and link the alarm to the previously configured alarm notification messages:



Alarm triggers
Category: alarm category. Assigning an alarm to a category makes the administration of all the different alarms easier. Categories can be created or deleted via the +/- buttons.
Alarm: If you select “Always“, an alarm is triggered every time the threshold value has been reached. If you select “only once“, the alarm is only sent once.
Threshold: defines the object, the math operator and the threshold value
Message: message text

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Please remember that the threshold communication object only supports the following DTP:

DPT_1_0XX: // 1-bit Boolean 1 o 0

DPT_5_001: // 8-Bit Unsigned Value // DPT_Scaling

DPT_5_010: // 8-Bit Unsigned Value // DPT_Value_1_Ucount

DPT_6_010: // 8-Bit Signed Value // DPT_Value_1_Count

DPT_7_001: // 2-Octet Unsigned Value // DPT_Value_2_Ucount

DPT_8_001: // 2-Octet Signed Value // DPT_Value_2_Count

DPT_9_0XX: // 2-Octet Float Value

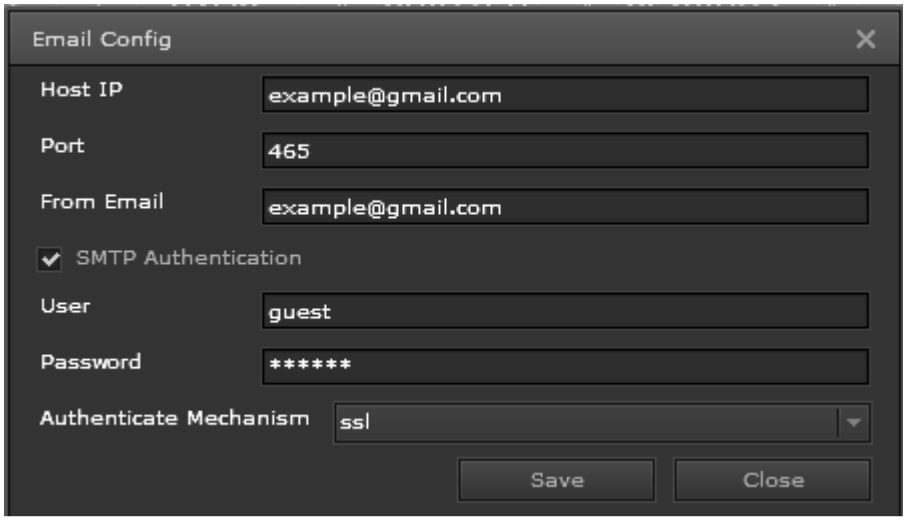
DPT_12_001: //4 -Octet Unsigned Value // DPT_Value_4_Ucount

DPT_13_001: // 4-Octet Signed Value // DPT_Value_4_Count

DPT_14_0XX: // 4-Octet Float Value

10.4.4. SMTP server configuration

E-mails that have been configured in the alarm module can only be sent if a valid SMTP service has been configured. To configure an SMTP server, please go to menu item Configuration → SMTP configuration .



- ***Host IP:*** *Name of the sending e-mail server (e.g. smtp@gmx.de),*
- ***Port*** *port of the SMTP server (e.g.445),*
- ***From email:*** *sender's e-mail address,*
- ***Authenticate SMPT:*** *if the SMTP server requires authentication, the option needs to be activated*
- ***E-Mail Addr.:*** *User name (e.g. m_mustermann@gmx.de),*
- ***Password:*** *user password*
- ***authentication:*** *SSL or TTLS,*

10.4.5. Example GMail

Host IP: Is the Gmail SMTP server address: smtp.gmail.com
From Email: Your full Gmail address (e.g. example@gmail.com)
Authenticate SMTP: YES
User: Gmail SMTP user name: Your full Gmail address (e.g. example@gmail.com)
Password: Gmail SMTP password: Your Gmail password
Authentication: You can choose between SSL and TLS:
SSL: in this case the port is the Gmail SMTP port: 465
TTLS: in this case the port is the Gmail SMTP port: 587

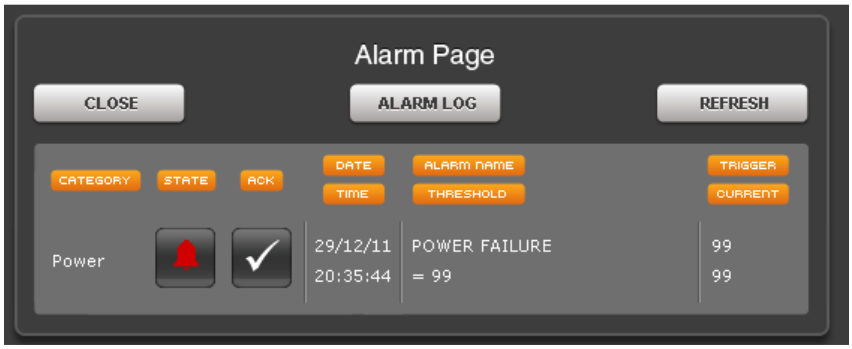
10.4.6. Example Hotmail

Host IP: Is the Hotmail SMTP server address: smtp.live.com
From Email: Your full Hotmail address (e.g. example@hotmail.com)
Authenticate SMTP: YES
User: Hotmail SMTP user name: Your full Hotmail address (e.g. example@hotmail.com)
Password: Hotmail SMTP password: Your Hotmail password
Authentication: TLS
Port: Is the Hotmail SMTP port: 587

10.4.7. Web user interface

A web user interface administers the alarms. This greatly simplifies the administration even of complex alarm settings.

A link in the visualisation or a pop-up window on the visualisation page after an alarm has been triggered both enable access.



The following information is displayed:
Category: the category assigned to the alarm
Status: current status of the alarm
Ack: shows whether the alarm has already been acknowledged or whether the acknowledgement is still outstanding
Date/time: date/time when the alarm was triggered
Name/threshold value: the name of the alarm and the configured threshold value,
Trigger/current: the configured value to trigger the alarm and the current value

The status notifications for each alarm are as follows:

Alarm is active and awaits acknowledgement

Alarm is active and has been acknowledged

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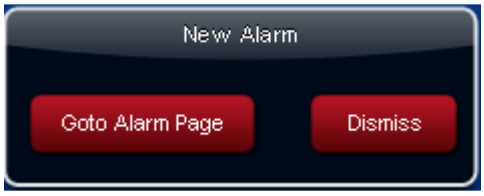
The alarm is no longer active and has been acknowledged.
Next time the alarm page is loaded, the acknowledged status will no longer be shown.

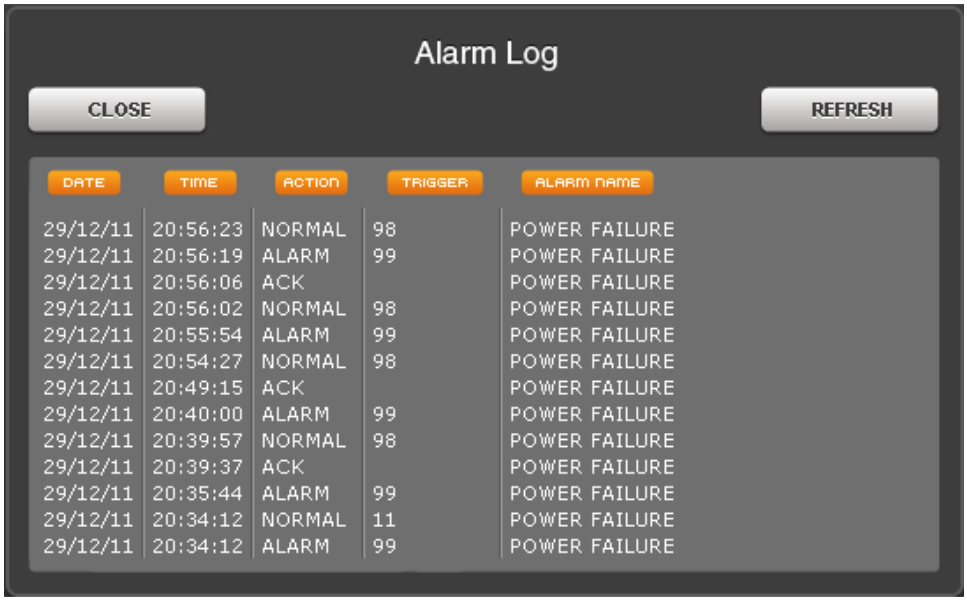
The alarm is no longer active and awaits confirmation.

If the pop-up window does not open when an alarm occurs, the following message appears.



10.4.8. Logbook alarm

All registered alarms are recorded in a log file which can be shown on the web-interface.


Alarm Log
CLOSE
REFRESH
DATE
TIME
ACTION
TRIGGER
ALARM NAME
29/12/11 20:56:23 NORMAL 98 POWER FAILURE
29/12/11 20:56:19 ALARM 99 POWER FAILURE
29/12/11 20:56:06 ACK POWER FAILURE
29/12/11 20:56:02 NORMAL 98 POWER FAILURE
29/12/11 20:55:54 ALARM 99 POWER FAILURE
29/12/11 20:54:27 NORMAL 98 POWER FAILURE
29/12/11 20:49:15 ACK POWER FAILURE
29/12/11 20:40:00 ALARM 99 POWER FAILURE
29/12/11 20:39:57 NORMAL 98 POWER FAILURE
29/12/11 20:39:37 ACK POWER FAILURE
29/12/11 20:35:44 ALARM 99 POWER FAILURE
29/12/11 20:34:12 NORMAL 11 POWER FAILURE
29/12/11 20:34:12 ALARM 99 POWER FAILURE

Date/time: date/time when the alarm event was triggered

Action: change in the status of an alarm

NORMAL: The status returns to normal

ALARM: the alarm has been triggered

ACK: the alarm has been acknowledged

Trigger: value at the moment of change to a different status

Name: the name assigned to the alarm

The Alarm Log is not saved persistently and is therefore empty when the device is re-started.

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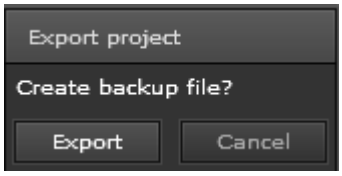
11. Backup and restore

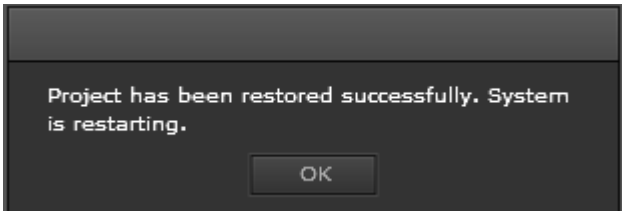
The current project can be saved under menu item File → Backup.



The project is saved in a file with the extension .hcc.

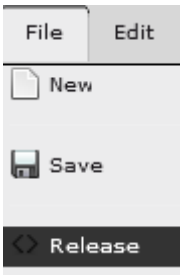
If you restore a project, please remember that all current data is lost. The current project is overwritten.

The following notice appears in the Editor after the Restore:

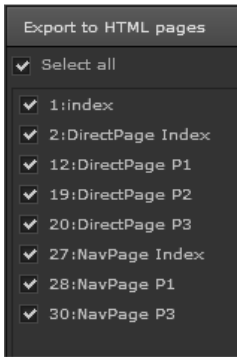


Press OK to go to the normal visualisation level.

Once a project has been successfully restored, the restored project is not automatically displayed. The following screen appears in the visualisation:



To activate the restored project, you will need to re-generate all pages in the Editor. Go to menu item File→Visualisation and select all HTML pages that you would like to generate.



12. Tipps

To select several control elements at the same time, please hold down the shift button and click on the required elements with the mouse.

You can now copy the selection and paste it into other pages.

Please use the same grid size on all pages to enable the insertion of copied elements at the right position.

Lasso function: From version 1.2 upwards you can also select several elements with the mouse at the same time (Lasso function).

Copy pages: Use the context menu (right click) in the left tree on a page to copy pages once or several times.

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13. Status object in the ETS

For an automatic diagnosis that is running in the background, the current service status of ComBridge HCC is sent to the bus. Communication object 1 of the ETS application is set aside for this purpose. Please use a DPT 4 Byte “unsigned“ for the configuration. This communication object is solely meant to be used as a diagnosis object and must not be used for other tasks. If an error occurs, an assigned value (error code) is automatically sent to the bus enabling a quick error analysis by means of an error code table. Once the error has been addressed, the value 0 (device o.k.) is sent to the bus

0 – no error
<>0 - error

Error analysis according to masks:

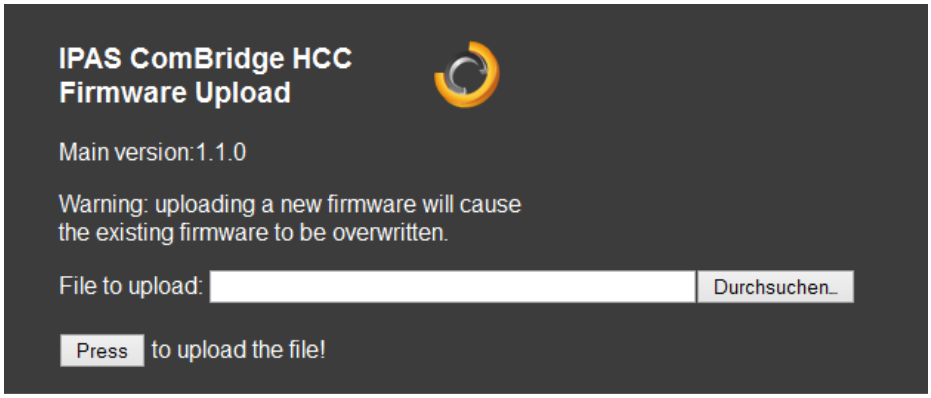
Web error	0x00100000	// server is not started
Policy error	0x00200000	// server is not started
FTP error	0x00400000	// server is not started
DNS error	0x00800000	// dns is wrong
SMTP un-defined username	0x01000000	// user is needed
SMTP un-defined password	0x02000000	// password is needed
SMTP wrong password	0x04000000	// SMTP: user or pass error
SMTP interrupted connection	0x10000000	// server is down
SMTP select	0x20000000	// SMTP: bad server or bad port
SMTP invalid host name	0x40000000	// Bad get hostbyname
SMTP error	0x80000000	// SMTP: unknown error

Status object (Obj nº1) is set back to 0 if the bus is not connected.

14. Firmware Update

The device offers the opportunity of an upgrade to the most recent firmware.
Please go to *http://"assigned IP address"*/upload.php to load the page.

Please enter the Editor password on the page. The default password is **HCC**.
A new page opens from where you can start the upgrade.
Please save the file with the upgrade first on the desktop of your PC/laptop. You can either enter the memory location for the file directly in the command line or SEARCH for it. PRESS to start the upgrade.



Please do not turn off the PC/laptop during the upgrade. If possible, please terminate all parallel processes beforehand.

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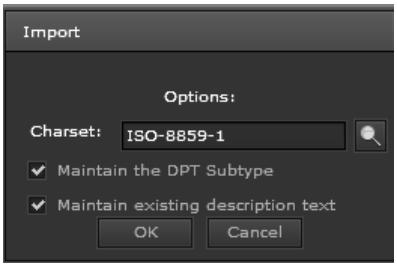
15. Appendix

15.1. Working with group addresses from version 1.2 upwards

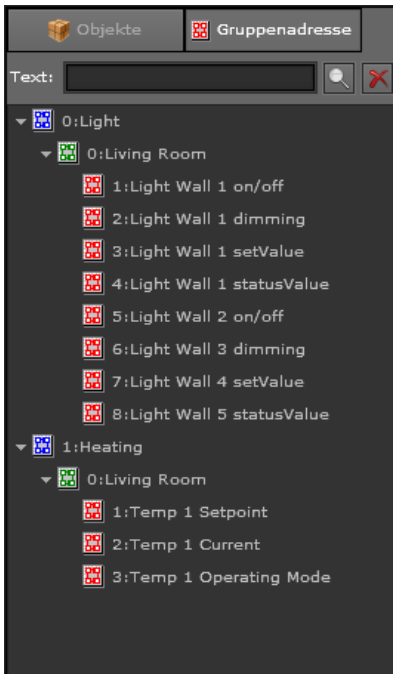
In the firmware versions 1.2 upwards you can make direct use of up to 1000 group addresses.

These can be directly linked to the elements or pulled out of a list via drag&drop.

15.1.1. Import from the ETS



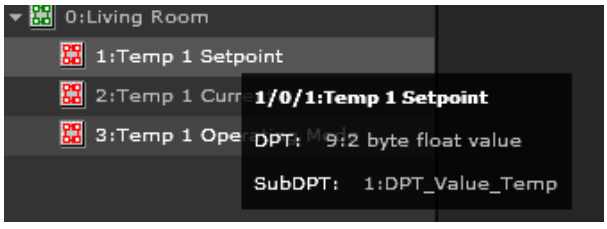
Use the menu item Import →import ESF to import an esf file that has previously been generated as an OPC export with the ETS. If you have used special characters such as Greek or Chinese, the respective set of characters can be pre-selected. You can also define whether you want to overwrite any already existing description texts or defined sub-datapoint types.



The display in the Editor is the same as in the ETS.

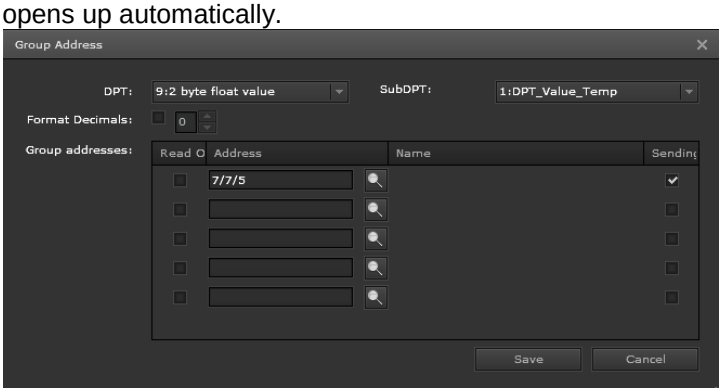
Whilst the data length of the esf export in the ETS is known, the exact data type is not known. The Editor therefore has the following pre-settings:

1 bit → 1bit
1 byte → 1 byte unsigned
2 byte → 2 byte float, SubDPT: DPT_Value_Temp
4 byte → 4 byte float



15.1.2. Linking group addresses with elements

Use drag&drop to pull one or several group addresses from the tree into an entry field to link them. You can also enter a group address with the keyboard. If no sub-datapoint type has been defined for this address, the editing window for the group address opens up automatically.



You can also open the window by clicking on the button. Up to 5 group addresses can be linked to an element. By default the datapoint type and sub-datapoint type are defined for each link. The first column „Read on start“ defines which group addresses are to be read when the device is started. The address and name columns display the corresponding function. The last column “Sending“ defines which group address is to be used as the sending address. All other group addresses listen in as is usual for touch sensors in a KNX installation.
You can also select the number of decimal places in the display.

The description of the group addresses can also be changed subsequently. Use the option flag during the import to select whether you want to overwrite the text with the text from the ETS.

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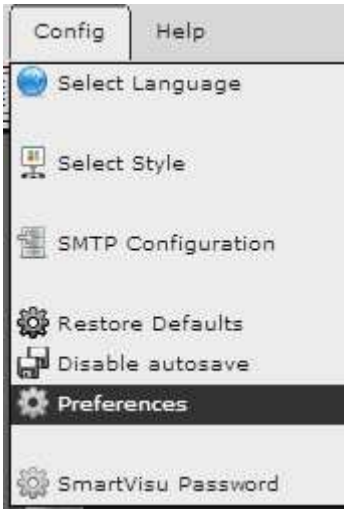
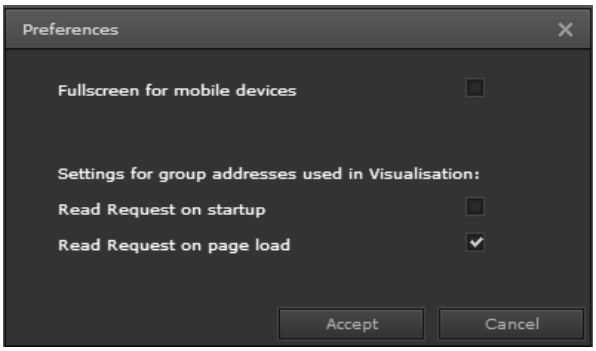
15.1.3. Initialize the value of group addresses

Objects which are configured via ETS are read from KNX at start-up of the device.
The behaviour of the additional group addresses can be defined in the “Preferences” window:





The following selection is supported:

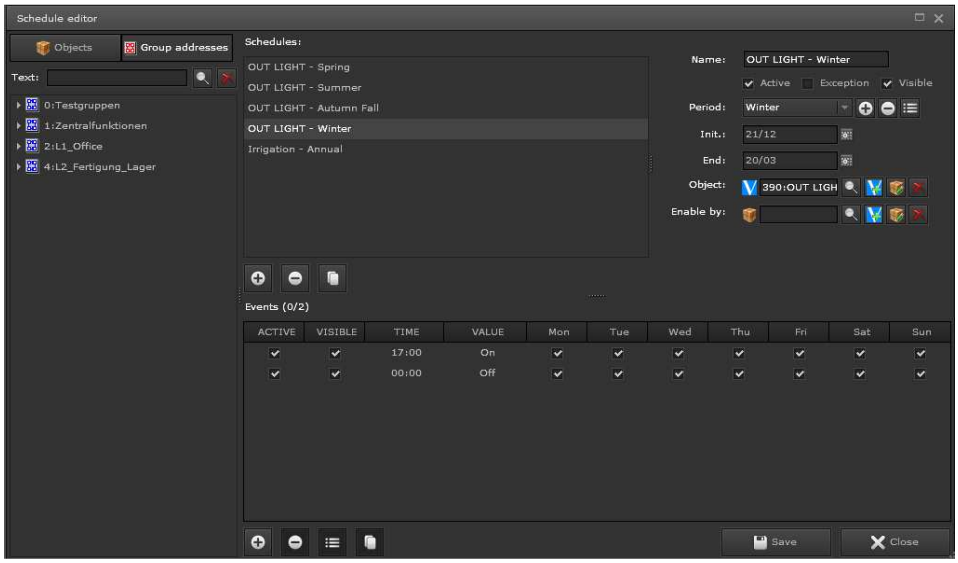
- *Read Request on startup*
- *Read Request on page load (default)*

In order to avoid that 1000 group addresses (maximal configuration) send a read request on KNX on start-up, there is an option to read only if the page is loaded.
In general these read requests are sent only if there is not already a valid value available.
As soon as a valid value is present, no read request is sent to KNX anymore.

In addition or as an alternative there is also the option to send all read request at start-up.
In that case the time delay settings between the read requests are defined in ETS as usual.

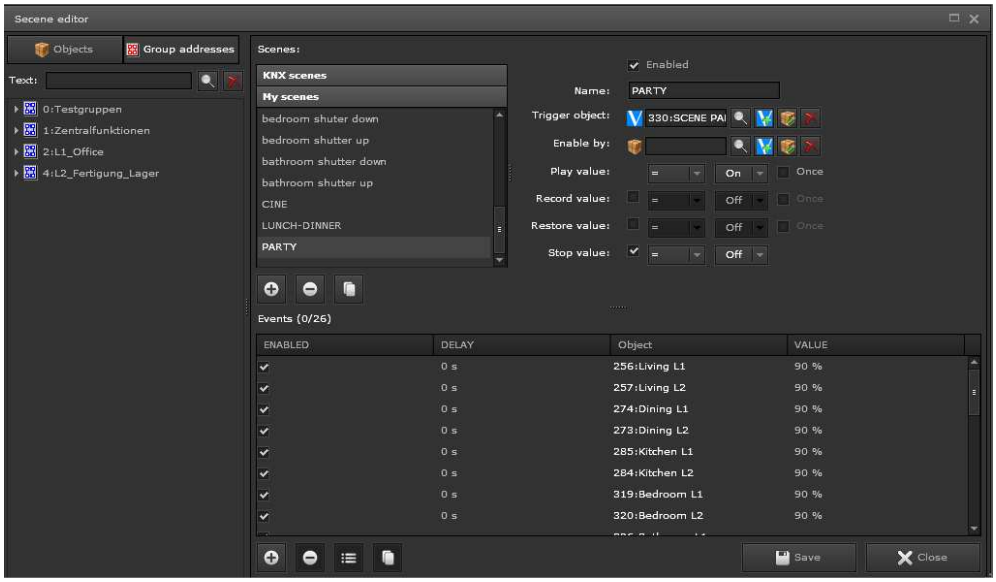
15.1.4. Using group addresses in the scheduling editor

The scheduling editor has been optimised so that a schedule can be configured easily and quickly without additional pop-up windows.



15.1.5. Using group addresses in scenes

The scene editor has been optimised so that scenes can be configured easily and quickly without additional pop-up windows. All values can be edited directly in the table or via drag & drop.



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15.2. Data sheet

Power supply
- 24 V DC
- In addition via ***EIB*** Bus

Control elements
- Programming button to toggle between normal and addressing mode

Display elements
- LED red indicates normal/addressing mode
- ERR-LED red signals a fault status
- LNK-LED yellow signals communication via Ethernet connection

Connectors
- Bus line: **EIB** bus connector (black/red)
- Power supply: bus connector (yellow/white)
- Ethernet 100 Mbit: RJ45 plug

Mechanical data
- Casing: Plastic ABS-V0
- Dimensions REG casing 4TE:
  Width: 72 mm
  Height: 55 mm
  Length: 86 mm
- Weight: 150 g
- Mounting: 35mm DIN rail

Electrical safety
- Pollution class: 2
- Protection type (in accordance with EN 60529): IP20
- Protection class: (in accordance with IEC 1140) I
- Overvoltage category: III
- Bus: Separated extra-low voltage SELV DC 24 V

EMC requirements

Complies with EN 50090-2-2 and EN 61000-6-2:2005,

EN 61000-6-3:2007

Environmental conditions
- Weather resistence: EN 50090-2-2,
- Environmental conditions during operation: -5°C to +45°C
- Storage temperature: -25°C to +70°C
- Rel. humidity (non condensing): 5 % to 93 %

Approbation

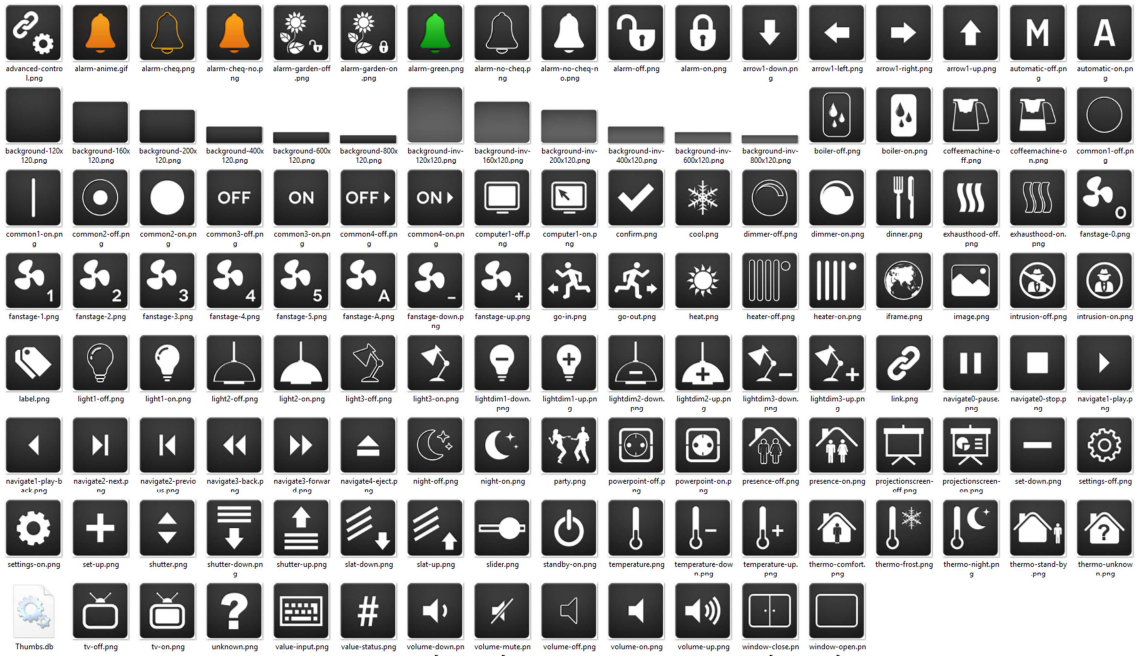
EIB/KNX registered

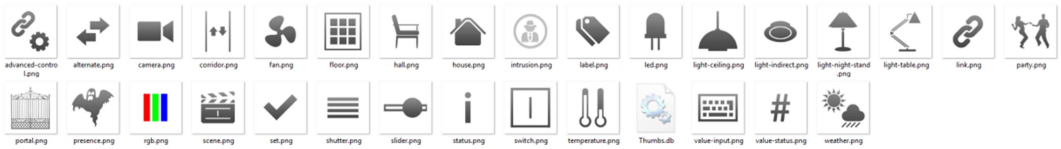
CE-Signage

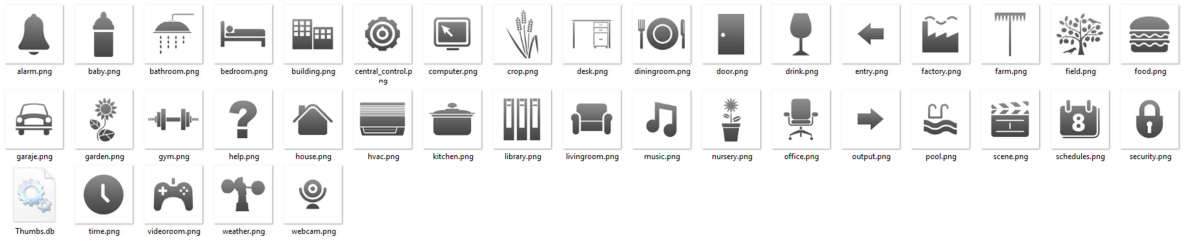
According to EMC-Guidelines (Residential and commercial buildings), Low Voltage guidelines

15.3. Illustration of different styles

15.3.1. Style Black







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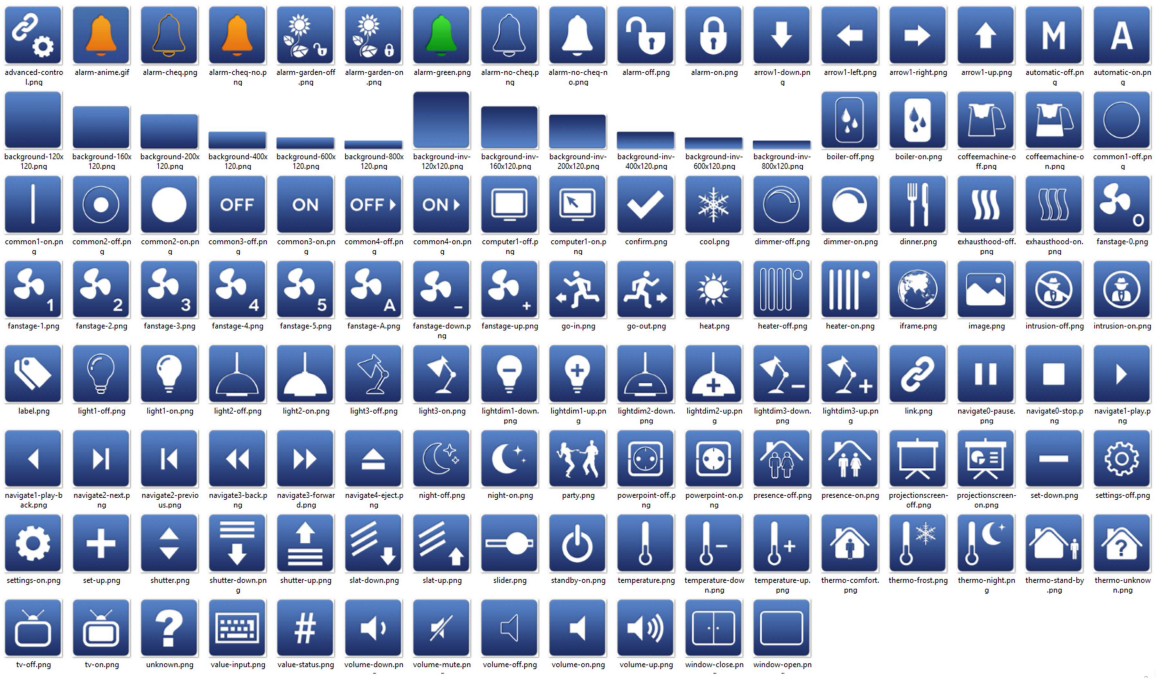
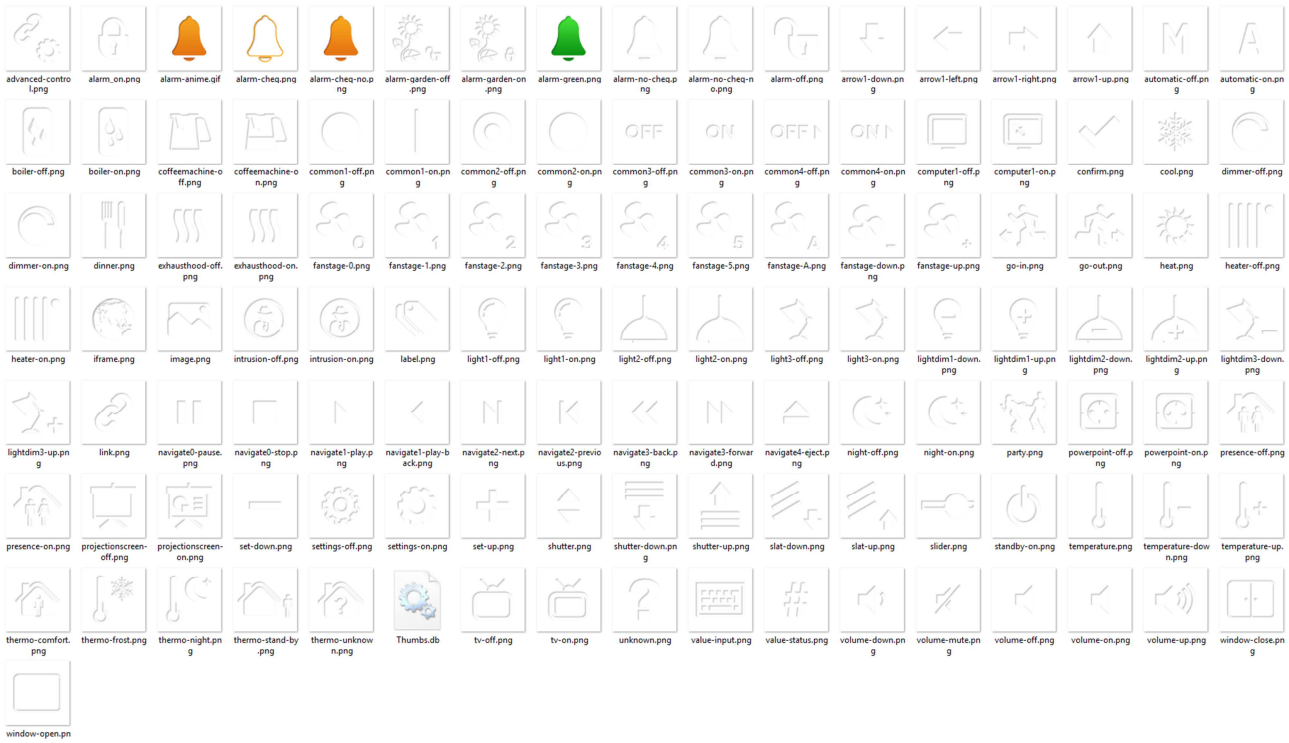
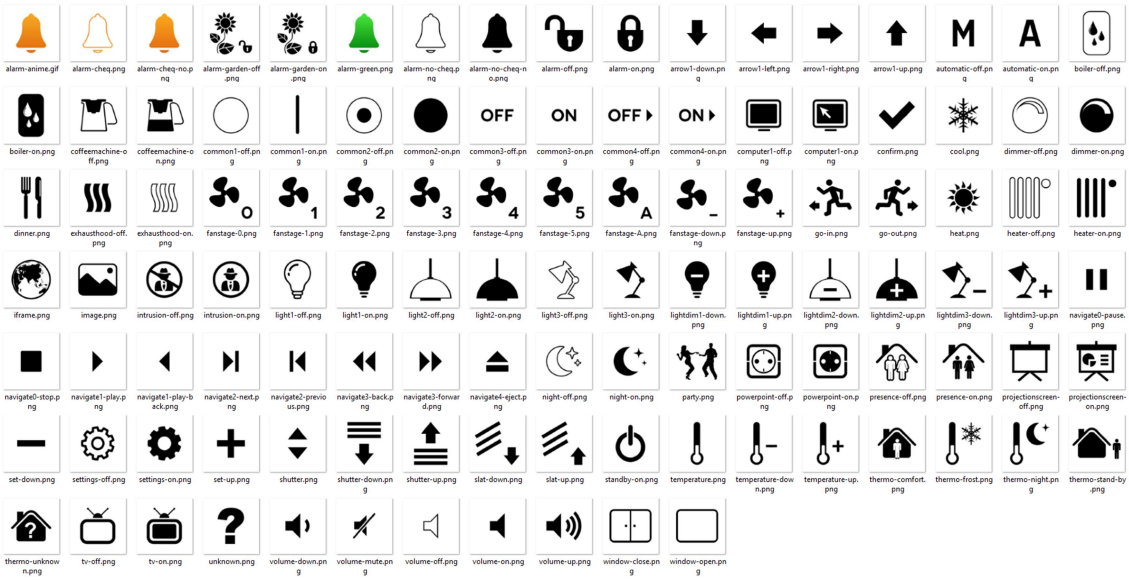
15.3.2. Style Blue





15.3.3. Style Black Transparent



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15.4. Definition of terms

DBMS	Database Management System
DHCP	Dynamic Host Configuration Protocol
DLL	Dynamic Link Library
DNS	Domain Name System
DSL	Digital Subscriber Line: High-speed data transfer via a standard telephone cable.
DynDNS	Dynamic DNS
EIB	European Installation Bus
EIBA	EIB Association
ETS	KNX Tool software: This is the standard KNX configuration tool.
Internet	A global network that consists of numerous individual networks which are connected by the use of TCP/IP protocols. The Internet comprises the individual networks of universities, schools, companies, research institutes, government departments, individuals and other organisations. The regulatory authority for this global network is the Internet Activities Board (IAB).
Internet Address	□ IP address
IP	Internet Protocol. This is the network-layer protocol on which the Internet is based. IP offers a simple, wireless packet exchange. Other protocols such as □ UDP and □ TCP use IP to perform their connection-oriented and secure delivery services
IP Address	A 4-byte (32 bit) number which uniquely identifies a computer, other Internet device or an IP Internet network. The IP address describes a specific network or a specific network gateway. An example for an IP address is 192.168.1.1. Normally an IP address is assigned from an existing pool of IP addresses either by a □ LAN network administrator or an IP Service Provider.
JVM	Java Virtual Machine. This is the runtime environment for programmes written in Java. Modern browsers use JVM to execute Java Applets that are contained in web sites.
KNX	KNX association (Konnex association).
KNXnet/IP	Protocol to transmit telegrams between KNX sub-networks or between a KNX sub-network and a PC via an IP network (LAN or WAN).
KNXnet/IP device management	EIBnet/IP protocol to configure KNXnet/IP devices via an IP network (LAN or WAN).
KNXnet/IP Routing	EIBnet/IP protocol to transmit telegrams between KNX/KNX sub-networks (“Line coupler function”) via an IP network (LAN or WAN).
KNXnet/IP Tunneling	KNXnet/IP protocol for point-to-point transmission of telegrams between an EIB/KNX sub-network and, for example, a computer via an IP network (LAN or WAN). Tunnelling can be used for visualisation and configuration.
LAN	Local Area Network. This network is restricted to a local area – a single building, a collection of buildings or a single room.
ODBC	Open Database Connectivity. A driver manager and a group of ODBC drivers which enable applications to access a database when using □ SQL as default language.
OPC	OLE for Process Control. A uniform interface between process control and SCADA systems.
RDBMS	Relational Data Base Management System

SCADA	System Control And Data Acquisition
SMTP	Simple Message Transport Protocol. This is the electronic mail protocol.
SQL	Structured Query Language.
TCP	Transmission Control Protocol. Transport-layer protocol which uses the Internet Protocol (IP) for the secure and guaranteed delivery of packets.
UDP	User Datagram Protocol. UDP uses a wireless, non-guaranteed packet delivery method. It is much faster than TCP. UDP can be used as a reliable method of transport when a higher layer protocol exists, which guarantees that data is transmitted to the recipient.
WAN	Wide Area Network. This network connects IP devices and computers in different cities and countries.

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15.5. Licenses

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Package ResizableCanvas - Version: 1.0

http://www.flexer.info/2008/05/19/resizable-canvas-both-directions/

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http://code.google.com/p/flexmdi/downloads/list

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6.)
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http://code.google.com/p/flex-object-handles/downloads/list
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7.)

Package Name: DegrafaBeta3.1 - Version: 3.1b

http://www.degrafa.org/code/

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Package Name: as3corelib - Version: 0.93

https://github.com/mikechambers/as3corelib/zipball/master

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Package Name: Md5 - Version 1.0

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http://cessh.codeplex.com/SourceControl/changeset/99885

Version 99885

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- IDEA is no longer included, its use is deprecated
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- GMP is no longer used, and instead we call BN code from OpenSSL

- Zlib is now external, in a library
- The make-ssh-known-hosts script is no longer included
- TSS has been removed
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- RC4 support has been replaced with ARC4 support from OpenSSL
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12.)

Package Name: AquaGauge

By Author: Ambalavanar Thirugnanam (ambalavanar.thiru@gmail.com)

http://www.codeproject.com/Articles/304874/HTML-Canvas-Aqua-Gauge

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13.)

Package Name: jquery

http://jquerymobile.com/resources/download/jquery.mobile-1.3.1.zip

http://code.jquery.com/jquery-1.8.2.min.js

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http://github.com/jweir/colorwheel/raw/master/colorwheel.js

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15.)
Package Name: raphael
Version 2.1.2

http://github.com/DmitryBaranovskiy/raphael/raw/master/raphael-min.js

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